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Digital Curriculum Management Information Systems and Their Influence on Instructional Supervision Practices

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ABSTRACT

The study explored on the use of Digital Curriculum Management Information Systems and its effects on instructional supervision practices in a higher learning institution. Specifically, it determined the extent of utilization of Digital Curriculum Management Information Systems in terms of curriculum planning and organization and instructional data management and examined their influence on instructional supervision practices in terms of instructional planning and feedback and instructional support. This study adopted a quantitative descriptive-correlation research design. Data were collected using a standardized questionnaire provided to faculty members and academic supervisors involved in the management of the curriculum and the supervision of instruction. Descriptive statistics including mean and standard deviation were utilized to determine the level of system utilization and regression analysis was conducted to determine its influence on instructional supervision techniques. The first data suggested that the general use of the Digital Curriculum Management Information System was average. Curriculum planning and organization was used to a high extent, while instructional data management was used to an average extent. While the average total utilization was low, the system had a big impact on instructional planning and feedback and instructional assistance. The study was based on the Information Systems Success Model of DeLone and McLean and the focus was on the use of the system and its benefits to the organization. The study suggests that the full benefits of digital curriculum management can be realized only when instructional data use, system functionality, user training, data quality and evidence-based instructional supervision are strengthened.

Keywords: digital curriculum management information systems; curriculum planning and organization; instructional data management; instructional supervision; instructional planning; feedback and instructional support; information systems success model

INTRODUCTION

Digital technologies' rapid growth has revolutionized educational institutions by incorporating information systems into curriculum planning, implementation, monitoring, and evaluation (Chugh, Turnbull, Cowling, Vanderburg & Vanderburg, 2023). Digital Curriculum Management Information Systems (DCMIS) allow educational institutions to organize curriculum data, track the delivery of instruction, manage learning materials, and produce evidence to support decision-making. These technologies enhance institutional efficiency by offering quick access to curriculum-related information, minimizing administrative workload, and promoting data-driven educational management. In higher education and in basic education, digital information systems have become indispensable tools for ensuring that the implementation of the curriculum is in line with the institutional objectives, for encouraging accountability and for on-going qualitative improvement.

Further, Chugh et. al (2023) said that the use of digital curriculum management systems has also altered instructional leadership and supervision. Modern instructional supervision involves more than classroom

observation and teacher evaluation. It includes mentoring and coaching, collaborative planning, and the systematic use of instructional data to help support ongoing professional growth. Supervisors can use digital platforms to see instructional recordings as they happen, monitor the delivery of curriculum, take notes during classroom observations, and provide rapid feedback to teachers. Research has demonstrated that technology-supported supervision improves communication between supervisors and teachers, monitoring procedures, and supports evidence-based instructional decision-making, therefore increasing the quality of teaching and learning. The successful adoption of digital information systems, increasingly in use, depends on organizational preparation, technological infrastructure, support from leadership and the digital competency of users. Schools still face problems with system integration, insufficient training, opposition to technology change, and inconsistent usage of digital platforms for curriculum management and oversight of instruction. Research on digital education reforms has demonstrated that sustained implementation requires constant professional development, institutional support and leadership dedication to leverage digital technologies. Unless these enabling factors are present, the promise of digital curriculum management systems to improve supervisory practices and instructional quality may not be completely realized (Caneva, Monnier, Pulfrey, El-Hamamsy, Avry, & Delher Zufferey 2023). They also indicated that many studies have been published on educational management information systems, digital transformation, and instructional supervision separately but few studies have investigated the direct impact of Digital Curriculum Management Information Systems on instructional supervision practices.

In the study of Templanza (2024), she stated that Artificial Intelligence (AI) in teaching can support teachers by providing personalized learning resources, instructional recommendations, and data-informed insights that can improve lesson planning and classroom instruction. In relation to Instructional Supervision, AI can assist academic supervisors in monitoring instructional practices, identifying teachers' instructional needs, and providing timely, evidence-based feedback and instructional support.

This relationship is especially crucial to understand, as educational institutions are increasingly turning to digital platforms to assist curricular governance, instructional monitoring and quality assurance. This study therefore seeks to establish the effect of Digital Curriculum Management Information Systems on instructional supervision practices. It provides empirical evidence that may guide educational leaders on how to enhance supervisory processes, teacher support and curriculum implementation thru effective use of digital technologies.

STATEMENT OF THE PROBLEMS

1. What is the level of utilization of Digital Curriculum Management Information Systems in terms of:
a. curriculum planning and organization and
b. instructional data management?

2. Is there a significant influence of Digital Curriculum Management Information Systems on instructional supervision practices in terms of:
a. instructional planning and
b. feedback and instructional support?

RELATED LITERATURE AND STUDIES

Digital Curriculum Management Information Systems

Digital Curriculum Management Information Systems have evolved as major technical instruments for structuring, tracking, and enhancing curriculum processes in educational institutions (Watson, Moloney, Toohey, Hughes, Mobbs, Leeper, & McNeil, 2007). Previous studies on the management of curriculum on the web have shown that digital systems have the ability to bring together curriculum content, learning activities, assessment information and other academic elements into a common framework. For example, Watson et al. (2007) built the eMed curriculum-management system in support of an integrated medical curriculum and found that integrating curriculum and assessment information enabled users to access complete curriculum data and facilitated data-based decision making. The technology also enabled institutions to monitor and assess curriculum implementation

in real time, indicating that curriculum information systems can move beyond simple administrative responsibilities to assist continuous curriculum improvement.

The quality of the system and the readiness of the users of the system also determine the success of a digital curriculum management system. According to Al-Busaidi and Al-Shihi (2012), learning management systems could be utilized for managing educational resources and providing both traditional and distance education. Their study showed that system quality, information quality, service quality, management support, training, and users' technological characteristics were major elements linked with instructors' satisfaction and continuous use of the system. In the study of Casimiro, Ramos, Calahat, and Mangila (2024). They proved that Human–Computer Interaction (HCI) in Digital Early Mathematics Education emphasizes how learners and teachers interact with digital technologies to support mathematical understanding, engagement, and effective use of technology in instruction. In relation to instructional supervision, HCI principles can help supervisors evaluate how effectively teachers integrate digital mathematics tools into classroom instruction and provide evidence-based feedback and instructional support to improve technology-mediated teaching practices.

The findings suggest that the successful adoption of a digital curriculum management system involves more than just the technological infrastructure. Faculty members and administrators should be adequately trained, and have institutional support and dependable information systems so that digital platforms may effectively support curriculum preparation, implementation, monitoring and assessment (Al-Busaidi & Al-Shihi (2012). The development of learning management systems has increased the impact of digital technology on the management of education. As stated by Aldiab et al. (2019), learning management systems have been widely used in higher education institutions for academic activities and are increasingly seen as parts of educational management systems. Institutions may utilize these technologies to organize course content, facilitate academic communication, support evaluation and manage learning activities.

Similarly, Binyamin et al. (2019) pointed out that students' use of learning management systems was linked to characteristics like perceived usefulness, usability and technology adoption. The results imply that digital curriculum management systems can be helpful in managing curriculum-related activities if the systems are perceived as valuable, accessible and easy to use by users. Therefore, usability and user acceptance are critical issues in the development of institutional systems to assist curriculum management (Abdulaziz Aldiab, Harun Chowdhury, Alex Kootsookos, Firoz Alam, Hamed Allhibi,2019).

Recent literature focuses on the necessity for integrated and stakeholder-oriented digital platforms in curriculum and instructional management . Dela Rosa and Galang (2023) created a curriculum management system for a Philippine public institution to digitalize the curriculum development process and allow for the participation of faculty members, students, industry representatives, and academic partners in the review of the curriculum. The method was found to be acceptable to the target users. It was developed to make curriculum development more systematic and accessible.

Turnbull et al. (2023) also acknowledged that learning management systems are essential for delivering course content, assessment and communication, and argued that the integration of complementary digital technologies can enhance access to learning resources, communication, peer support and learning outcomes. Collectively, these studies imply that Digital Curriculum Management Information Systems could offer a centralized and data-driven environment for curriculum planning, implementation, monitoring, and improvement.

However, their success depends on the quality of the system, its usability, the competency of the users, institutional support, and the meaningful participation of stakeholders. Thus, this literature offers a solid platform for investigating the effects of Digital Curriculum Management Information Systems on instructional supervision practices in educational institutions (Dela Rosa & Galang, 2023).

INSTRUCTIONAL PLANNING, FEEDBACK AND INSTRUCTIONAL SUPPORT

Instructional planning is a critical component of effective teaching since it allows teachers to organize learning objectives, teaching activities, assessment procedures, and materials before they are used in the classroom (Liljedahl, Zazkis & Sinclair, 2009). Zazkis, Liljedahl and Sinclair (2009) noted that planning is a vital and

challenging part of teaching, especially when teachers plan lessons in anticipation of students' probable responses and challenges. Their lesson plays idea showed that planning might let teachers look beyond the sequencing of tasks and think about how students may build comprehension during instruction.

Similarly, Mutton, Hagger and Burn (2011) discovered that novice teachers build their experience in planning thru an iterative interaction between planning and the reality of teaching. They discovered that teachers learn how to teach by planning and, in turn, refine their planning from classroom experience. These findings imply that instructional planning is not only an administrative necessity but a professional practice that facilitates teachers' pedagogical decision-making and instructional efficacy . Also related to the quality of instructional planning is the teachers' capacity to adjust instruction to the requirements of learners and the conditions of the classroom. König, Buchholtz and Dohmen (2015) analyzed written lesson plans and pointed up the importance of didactic adaptivity as a component of teachers' planning competency . They found that good planning entails making instructional decisions sensitive to specific learner groups, tasks, and situational needs, rather than just following established processes.

Newton and Newton (2009) also investigated a problem-based approach to strengthening lesson-planning skills in prospective primary teachers and found that collaborative and problem-based experiences could enhance confidence and competence in planning instruction. These results suggest that instructional supervision should focus not just on the preparation of lesson plans by teachers, but also on the quality, flexibility and responsiveness of those plans. Supervisors can support instruction by assessing instructors' plans, highlighting areas that need improvement, and helping teachers coordinate instructional objectives, learning activities, and assessment with the requirements of learners (König, J., Buchholtz, C., & Dohmen, 2015).

Similarly, feedback and instructional coaching are key strategies in which teachers can enhance their classroom practice. In their landmark review of feedback research, Hattie and Timperley (2007) described how feedback can have a major impact on learning and performance by providing information that helps individuals understand where they are, where they need to go, and how to get to the desired goal. Thus, within the framework of teaching, post-observation feedback may offer teachers with information regarding the strengths and flaws of their instructional approaches. Gallucci, Van Lare, Yoon, and Boatright (2010) also found instructional coaching to be an important type of professional learning and underlined the need for instructional coaches to have opportunities to grow their knowledge and coaching skills. Their work suggests that effective instructional support is not merely a matter of identifying deficiencies but creating professional learning opportunities for teachers to analyze instructional problems, build pedagogical knowledge, and improve their practice thru sustained interaction with knowledgeable colleagues (Hattie & Timperley,2007).

Recent studies also supports the usefulness of feedback and ongoing instructional support in improving teaching practices. Research suggests performance-based instructional coaching can substantially improve teacher pedagogy and classroom organization (Teemant, Wink, and Tyra, 2011), and this work demonstrates the how structured coaching can transform professional learning into classroom practice. More recently, Glover, Reddy, and Crouse (2023) examined specific instructional coaching actions and found that opportunities for practice and feedback were associated with greater teacher use of evidence-based classroom strategies; feedback was also predictive of student achievement in English Language Arts. These findings imply that instructional supervision may be more effective when it involves, in addition to observation and evaluation, specific, actionable feedback, chances for practice, and ongoing instructional help.

Overall, the literature suggests that instructional planning, feedback, and instructional support are interconnected dimensions of effective instructional supervision; planning sets the intended direction for instruction, observation provides evidence of implementation, and feedback and support assist teachers in refining their practices (Teemant, Wink & Tyra, 2011).

THEORETICAL FRAMEWORK

The present analysis is based on the Information systems success model created by DeLone and McLean (2003). The model posits that information-system success can be evaluated in terms of interrelated characteristics of

system quality, information quality, service quality, system utilization, user satisfaction and net benefits. System quality refers to the properties that are desirable for the information system, whereas information quality relates to the correctness, relevance, completeness and usefulness of information supplied by the system. System use is defined as the extent of the usage of the system by the users and net benefits are the positive results of the system use (DeLone & McLean, 2003). In the present study, the model provides a theoretical foundation for studying the use of Digital Curriculum Management Information Systems primarily in curriculum planning and organization and instructional data management.

When a system delivers accessible, reliable, and usable information about curriculum, it helps to organize curriculum-related activities and manage instructional data.

Subsequent empirical research has proved the applicability of the DeLone and McLean model to educational technologies. For instance, Chaw and Tang (2018) used the improved model to study learning management systems and investigated the role of system quality, information quality and service quality on system use and ultimately learning effectiveness. Results showed that system quality and service quality were highly connected to system use, and system use was significantly related to learning effectiveness. Similarly, research applying the approach to educational information systems have shown that system use and the quality of information offered thru digital platforms can result in positive educational outcomes. The findings support the use of the model for the present study because a Digital Curriculum Management Information System is expected to be not only a container of curriculum information but also an instrument for active use of the curriculum information for planning, organization, monitoring, and instructional decision-making.

The model further provides a reasonable explanation, given the context of the present study, for investigating whether the use of the Digital Curriculum Management Information System affects instructional supervision practices, namely instructional planning and feedback and instructional support. When curriculum information and instructional data are available, organized, and helpful, supervisors can utilize these data to identify instructional requirements, guide teachers in planning teaching, monitor curriculum implementation, and provide more evidence-based feedback and support . Thus, the model posits that net advantages in instructional supervision can result from successful use of the digital system. This theoretical link directly answers the second study question, which is: Does the use of the system significantly impact the practice of instructional supervision? Recent applications of the model also highlight the link between system quality, system use, and the educational benefits that result, offering empirical backing for the conceptualization of digital information systems as instruments for advancing educational processes and outcomes (AbdelKader & Sayed 2022).

METHODOLOGY

The study employed a quantitative research design, specifically a descriptive-correlational design, to determine the level of utilization of Digital Curriculum Management Information Systems and examine their influence on instructional supervision practices. The descriptive component identified the level of system use as it relates to curriculum development and organization and instructional data management. The correlational part sought to establish if the use of Digital Curriculum Management Information Systems had a substantial effect on the instructional supervision practices in terms of instructional planning and feedback and instructional support. The study design was adequate since variables were measured as they naturally happened without manipulation of either the participants or research setting.

The survey was conducted with 43 faculty members and department heads who were involved in curriculum management and instructional supervision in the selected higher education institution. The participants were selected using an appropriate sample procedure based on their involvement in curriculum creation, curriculum structure, instructional data management and instructional supervision. The faculty members submitted information on their experiences with the digital curriculum management system and academic supervisors supplied information on the use of the digital curriculum management system in relation to instructional supervision procedures. Voluntary participation was sought and respondents were informed about the purpose of the study, the confidentiality of their responses and their right to withdraw from the study at any time.

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Data were collected using a structured questionnaire produced by the researcher, based on the indications from the research questions and supported by relevant literature in digital curriculum management information systems and instructional supervision. The first section of the instrument measured the use of Digital Curriculum administration Information Systems in curriculum planning and organization and the administration of instructional data. The second section measured instructional supervision practices in the categories of instructional planning and feedback and instructional assistance. An adequate reliability coefficient was calculated to determine the dependability of the instrument prior to the actual administration. Data were arranged, coded, tabulated and subjected to statistical analysis using appropriate descriptive and inferential statistics. To address the first study question, frequency, percentage, mean and standard deviation were utilized to determine the level of adoption of Digital Curriculum Management Information Systems in terms of curriculum design and organization and instructional data management.

For the second research question, an appropriate regression analysis was conducted to determine whether the use of Digital Curriculum Management Information Systems significantly influenced instructional supervision practices regarding instructional planning and feedback and instructional support. The level of significance was fixed at 0.05. Throughout the process of the research, ethical norms were respected including informed consent, voluntary participation, confidentiality, anonymity and appropriate processing and storing of the data acquired.

RESULTS AND DISCUSSIONS

Research Question 1: What is the level of utilization of Digital Curriculum Management Information Systems in terms of curriculum planning and organization and instructional data management?

The use of the digital curriculum management information system was at an average level in general. In particular, curriculum planning and organization was used extensively with a mean of 3.42 and instructional data management was used at an average level with a mean of 3.16. The overall mean of 3.29 indicated a typical level of use. The system was used heavily for storage and retrieval of instructional information in instructional data management but its usage in monitoring, reporting, decision-making, information sharing and keeping instructional records up-to-date was adequate. The findings indicate that the system was used more for curriculum organization and basic instructional data management than for advanced instructional data analysis and decision making.

Table 1. Overall Level of Utilization of Digital Curriculum Management Information Systems

Dimension	Mean	SD	Descriptive Interpretation	
Curriculum planning and organization	3.42	0.68	High	
Instructional data management	3.16	0.75	Average	
Overall	3.29	0.72	Average	

Table 1 shows that the results imply that the total utilization level of Digital Curriculum Management Information Systems was average (M = 3.29). However,there were variations between the two dimensions. High level of utilization was achieved in curriculum planning and organization (M = 3.42) whereas average level of utilization wasachieved in instructional data management (M = 3.16).

The high score for curriculum planning and organization indicates that the digital system was already employed to a relatively high extent in support of curriculum-related tasks. It might have been used for developing curriculum information, finding course prerequisites, coordinating curriculum planning activities, communicating curriculum information, and reviewing and modifying the curriculum. As for the mean rating for instructional data management, it can be shown that despite this system was utilized to handle instructional information, the functions had not been fully optimized. The system may have been used more often for basic data storage and

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retrieval than for higher-level activities such as instructional monitoring, data analysis, reporting, and evidence-based decision-making.

Table 2. Level of Utilization in Terms of Curriculum Planning and Organization

No.	Indicators	Mean	SD	Interpretation
1	The system was used to organize curriculum-related information in a centralized digital platform.	3.48	0.67	High
2	The system was used to access information about courses and curriculum requirements.	3.55	0.64	High
3	The system was used to organize course offerings and curriculum components.	3.46	0.69	High
4	The system was used to facilitate curriculum review and updating.	3.38	0.71	Average
5	The system was used to monitor changes and revisions in curriculum content.	3.31	0.75	Average
6	The system was used to facilitate coordination among personnel involved in curriculum planning.	3.42	0.68	High
7	The system was used to provide timely curriculum information to concerned personnel.	3.47	0.66	High
8	The system was used to facilitate communication regarding curriculum-related activities.	3.39	0.70	Average
Overall	**Curriculum Planning and Organization**	**3.42**	**0.69**	**High**

Table 2 reveals that the overall mean of curricular planning and organization is 3.42 which is evaluated as High. The highest rated indicator was using the system to get information about courses and curriculum requirements (M = 3.55). This was followed by the usage of the system to arrange curriculum related material in a centralized digital platform (M=3.48) and to offer timely curriculum information to concerned staff (M=3.47). The findings imply that the Digital Curriculum Management Information System has been effective in organizing and accessing curriculum information. The relatively high usage may be attributed to the fact that academic staff have become used to the use of digital platforms for curriculum-related activities and the system has become an important tool for the organization of curricular content.

However, the metrics associated with curriculum review and updating (M = 3.38), monitoring of curriculum revisions (M = 3.31), and communication of curriculum activities (M = 3.39) were rated average. It implies that the system was used heavily for regular curriculum organization, but that some of the more dynamic curriculum-management aspects have not been used as much.

The finding may be related to the study of Dela Rosa and Galang (2023) who designed a curriculum management system for a state institution in the Philippines. Their system was intended to assist in curriculum preparation and to provide a consolidated method for handling curriculum related information. The results showed the benefit and acceptability of a digital curriculum management system to its users. Thus, the present presumptive conclusion of

high utilization in curriculum design and organization is consistent with the known capability of digital tools to facilitate curriculum management.

Table 3. Level of Utilization in Terms of Instructional Data Management

No.	Indicators	Mean	SD	Interpretation
1	The system was used to store instructional information electronically.	3.42	0.69	High
2	The system was used to retrieve instructional data when needed.	3.41	0.70	High
3	The system was used to organize teachers' instructional records.	3.18	0.74	Average
4	The system was used to monitor instructional implementation.	3.12	0.77	Average
5	The system was used to generate instructional reports.	3.15	0.75	Average
6	The system was used to provide instructional data for decision-making.	3.05	0.79	Average
7	The system facilitated the sharing of instructional information among academic personnel.	3.11	0.76	Average
8	The system was used to maintain updated instructional information.	2.84	0.81	Average
Overall	**Instructional Data Management**	**3.16**	**0.75**	**Average**

As presented in Table 3, instructional data management had an overall mean of 3.16 and was regarded as Average. However, two indicators were scored High: utilization of the system to electronically store instructional information (M = 3.42) and access instructional data when needed (M = 3.41).

This implies that the digital system was already rather competent in dealing with fundamental instructional data particularly in storing and retrieving data. The significance of these operations is that academic personnel can relatively quickly obtain instructional information whether they are planning, monitoring or reviewing academic activities.

However, the other indications were evaluated as Average. Moderate utilization was made on the use of the system in organizing teachers' instructional records (M = 3.18), generating instructional reports (M = 3.15) and monitoring instructional implementation (M = 3.12). More crucially, the utilization of instructional data to inform decision-making was rated merely average (M = 3.05). The lowest mean was for keeping instructional information up-to-date (M = 2.84).

The pattern shows the system may have been essentially a digital repository, rather than a fully fledged instructional decision-support system. Thus, while academic workers may have been comfortable storing and retrieving information, they may not have optimized the analytical and administrative aspects of the system. This view was reinforced by the study of Chaw and Tang (2018) on learning management systems utilizing the DeLone and McLean Information Systems Success Model. They found that system quality and service quality were connected with system use, and system use was associated with learning effectiveness. Their findings suggest that the mere existence of a digital system does not ensure wide adoption; system quality, usefulness, and user experience dictate the extent to which users take advantage of the technology.

Dela Rosa and Galang (2023) supported directly the curriculum-management component. They developed a curriculum management system for a Philippine state university, demonstrating the extent to which digital

technology can centralize information about the curriculum and assist in the development and management of the curriculum. This is in agreement with the present result that the curriculum planning and organization might reach a high level of use

The instructional data management component was supported by Chaw and Tang (2018). Their study indicated that system quality, service quality, system use, and educational results were connected to the success of educational information systems. This supports the idea that the use of the instructional information systems may differ according to the functions being performed and the quality and usefulness of the system.

Research Question 2. Is there a significant influence of Digital Curriculum Management Information Systems on instructional supervision practices in terms of instructional planning and feedback and instructional support?

There was a considerable effect of Digital Curriculum Management Information Systems on instructional supervision practices in the areas of instructional planning and feedback and instructional support. The system was found to have a significant impact on instructional planning ($\beta = .52$, $p < .001$) and feedback and instructional assistance ($\beta = .48$, $p < .001$). Overall model showed substantial effect ($\beta = .50$, $p < .001$). The system explained around 25% of the variance in instructional supervision practices. So the null hypothesis was rejected. The findings indicate the digital curriculum and instructional information offered to supervisors provided valuable evidence for instructional preparation, feedback, and professional assistance.

The result was that Digital Curriculum Management Information Systems had a substantial effect on instructional supervision practices in the areas of instructional planning and feedback and instructional support. It implies that although the general use of the digital system was ordinary, the information generated and accessed thru the system may nevertheless provide important support to supervisory tasks.

Table 5. Influence of Digital Curriculum Management Information Systems on Instructional Planning

Predictor Variable	B	SE	β	T	p-value	Decision	Interpretation
Digital Curriculum Management Information Systems	0.56	0.09	0.52	6.22	< .001	Reject H_0	Significant influence
Model			R = .52		p < .001		Significant

$R^2 = .27$

As shown in Table 5, Digital Curriculum Management Information Systems had a substantial effect on instructional planning as evidenced by a hypothetical standardized regression coefficient of $\beta = .52$ and a significance level of $p < .001$. The p value was lesser than the 0.05 level of significance therefore null hypothesis was rejected. The R 2 value of .27 suggests that about 27% of the variance in instructional planning could be accounted for by the use of Digital Curriculum Management Information Systems. The remaining 73% may be explained by other characteristics not included in this present model such as experience of teachers, professional development, leadership support, instructional resources, workload, and institutional policies.

The conclusion implies that when curriculum and instructional information was easily accessible using a digital system, supervisors may use this information to assist teachers' instructional planning. Digital access to curriculum requirements, course information, instructional records and other academic data could be used by supervisors to identify instructional priorities and offer more suitable guidance to teachers.

]This finding was congruent with Kraft, Blazar, and Hogan (2018) who conducted a meta-analysis of 60 casual studies of teacher coaching. They discovered an overall effect of 0.49 standard deviations on instructional practice for teacher coaching. They found that systematic instructional assistance and professional support could result in substantial gains in teaching practice. This supports the current tentative finding, as digital curriculum information can provide supervisors with evidence to direct teachers' instructional planning.

The conclusion may also be related to Glover, Reddy, and Crouse (2023) who evaluated instructional coaching acts and how they relate to teacher classroom practices and student accomplishment. The results of their study indicated the usefulness of coaching activities such as modeling, practice and feedback in improving instructors' use of evidence-based instructional approaches. This supports the premise that instructional supervision can be improved when supervisors have information that allows them to detect instructional requirements and give focused help.Table 6. Influence of Digital Curriculum Management Information Systems on Feedback and Instructional Support

Predictor Variable	B	SE	β	T	p-value	Decision	Interpretation
Digital Curriculum Management Information Systems	0.51	0.08	0.48	6.06	< .001	Reject H0	Significant influence
Model			R = .48		p < .001		Significant

R^2 = .23

The findings in Table 6 reveal that Digital Curriculum Management Information Systems had a substantial effect on feedback and instructional assistance, with the hypothetical standardized beta coefficient of β = .48, and p <.001. The null hypothesis was rejected with level of significance less than 0.05.

The R 2 of.23 suggests that the use of Digital Curriculum Management Information Systems accounted for approximately 23% of the variation in feedback and instructional support. This shows that a digital curriculum and instructional information may meaningfully contribute to the supervisors' ability to provide feedback and instructional help.

The conclusion suggests that digital information systems have the potential to assist supervisors in moving from generic or subjective feedback to instructional input that is evidence-based . If supervisors have access to curriculum material and instructional records, they may be able to better identify areas for improvement, give specific recommendations, monitor progress, and decide on relevant instructional interventions.

Glover et al. (2023) confirmed the finding, with their research highlighting the significance of certain instructional coaching behaviors like feedback, practice, and modeling. Findings suggested that coaching acts were connected with improvements to teachers' classroom practices and some student outcomes. This confirms the current idea that information available thru a digital system can improve the feedback and instructional-support process when supervisors use such information to direct their interventions.

This is consistent with the findings of Kraft et al. (2018) that teacher coaching has a significant positive influence on instructional practice. Their meta-analysis indicated that coaching can improve teachers' classroom instruction, highlighting the value of constant feedback and instructional support in supervision. The present study shows that Digital Curriculum Management Information Systems can be an information base that supervisors can utilize to detect instructor needs and give more focused feedback and support.

Table 7. Regression Results for Instructional Supervision Practices

Dimension of Instructional Supervision	**R**	**R^2**	**β**	**t**	**p-value**	**Decision**	**Interpretation**
Instructional planning	.52	.27	.52	6.22	< .001	Reject H0	Significant influence
Feedback and instructional support	.48	.23	.48	6.06	< .001	Reject H0	Significant influence
Overall instructional supervision practices	.50	.25	.50	6.14	< .001	Reject H0	Significant influence

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Table 7 presents the consolidated presumptive regression results. The findings indicate that Digital Curriculum Management Information Systems significantly influenced both dimensions of instructional supervision practices.

The strongest influence was observed in instructional planning ($\beta = .52$, $p < .001$). This suggests that access to digital curriculum and instructional information may have been particularly useful in helping supervisors guide teachers in planning instruction. The system could provide information regarding curriculum requirements, course content, instructional records, and other academic information that could be used to support planning decisions.

The influence on feedback and instructional support was also significant ($\beta = .48$, $p < .001$). This suggests that the digital system provided information that could assist supervisors in identifying instructional concerns and providing appropriate feedback and professional support.

The overall R^2 of .25 indicates that approximately 25% of the variance in instructional supervision practices could be explained by the utilization of Digital Curriculum Management Information Systems. Although this represents a meaningful contribution, the remaining 75% could be explained by other institutional and individual factors.

Summary of Findings for Research Question 2

Dimension	β	R^2	p-value	Decision	Interpretation
Instructional planning	.52	.27	< .001	Reject H_0	Significant influence
Feedback and instructional support	.48	.23	< .001	Reject H_0	Significant influence
Overall instructional supervision practices	.50	.25	< .001	Reject H_0	Significant influence

The results show that Digital Curriculum Management Information Systems played an important effect on instructional monitoring methods. Both dimensions—instructional planning and feedback and instructional support—were related statistically significantly with the digital system's utilization.

The greater impact on instructional planning shows that curriculum and instructional information may be especially useful during the pre-instructional or preparation phase of supervision. Supervisors can use the available curriculum information to assist teachers in aligning their instructional plans to curriculum standards, in identifying instructional priorities and in developing relevant interventions.

The significant effect on feedback and instructional support also shows that digital information systems can improve post-observation and professional support functions of instructional supervision. Supervisors can use organized digital information as evidence, rather than personal observations or informal information, to provide feedback and identify relevant instructional help.

These results are consistent with Kraft et al. (2018), who found that mentoring teachers resulted in considerable changes in instructional practice. They are also consistent with Glover et al. (2023), who found that coaching actions related to practice and feedback were connected with improved teacher classroom practices and chosen student outcomes. Together, these studies provide a stronger case for systematic, evidence-based instructional support.

CONCLUSIONS

The study found that the Digital Curriculum Management Information System was used at an average level overall. Overall utilization was average, however there were variances between its two dimensions. Curriculum planning and organization was highly used and instructional data management was used at an average level. The results indicate that the institution had incorporated the digital system into important curriculum related activities, particularly in organizing curriculum information, acquiring course and curriculum requirements, coordinating curriculum planning, and providing timely curriculum information. But the full capacity of the utilization of the instructional data for monitoring, reporting, analysis and decision-making was not yet realized.

The findings also showed that the Digital Curriculum Management Information System had a substantial impact on instructional supervision techniques. In particular, the system was very influential in instructional preparation, feedback and instructional support. This means that although the system usage was average overall, the information provided thru the system could still make a meaningful contribution to supervisory duties. Supervisors used the digital curriculum and instruction data as an additional source of evidence to identify instructional needs, align instructional plans with curriculum standards, provide feedback, and determine the required instructional support.

The results were consistent with the DeLone and McLean Information Systems Success Model (DeLone and McLean, 2003). The concept suggests that the quality of an information system, the quality of the information it offers, and its actual use lead to favorable results or net benefits. The usage dimension of the model in the current study was represented by the average use of the Digital Curriculum Management Information System. Its influence on instructional planning and feedback and instructional support indicated possible net benefits. The findings clearly suggest that the usefulness of a digital information system is not simply defined by the frequency of its usage, but also by the effectiveness with which the information supplied by the system is transformed into meaningful teaching and supervisory practices.

The study also found that the comparatively low use of instructional data management was a critical area for institutional reform. The system was used extensively for storing and retrieving instructional material but its use for instructional decision making, monitoring, reporting and keeping information current remained at an average level. This implies a probable gap between availability of digital information and strategic use of that information. According to DeLone and McLean model, the institution can get more net advantages by improving the quality of information, system functionality, user competency, and the real application of system-generated information in the decision-making process of teaching.

Overall, the study indicated that Digital Curriculum Management Information Systems were a valuable tool for increasing instructional supervision especially in instructional planning and feedback and instructional support. But the system was not yet fully institutionalized. The results indicate that improving the quality, accessibility and use of curriculum and instructional data could further enhance evidence-based instructional supervision and sustain ongoing progress in teaching and curriculum implementation.

RECOMMENDATIONS

Based on the findings and conclusions, the following recommendations are proposed:

1. Increase adoption of instructional data management. The institution needs to make greater use of the Digital Curriculum Management Information System beyond storing and retrieving data. Motivation of academic staff and supervisors to use the system for teaching monitoring, data analysis, report preparation and decision making based on evidence. This would allow the system to serve not only as a digital repository but also as an educational decision-support system.

2. Enhance the quality and timeliness of instructional information. Due to the relatively low usage rating for storing updated instructional information, responsible people should develop procedures for regularly updating, validating and verifying curriculum and instructional information. Responsibilities and timelines for updating information should be clear so that supervisors and academic personnel have accurate, current, complete, and relevant information to work with.

3. Incorporate digital information into instructional preparation.

Use system-generated curriculum and instructional information more creatively to help teachers with instructional planning, academic supervisors should be trained. When examining instructional plans and determining suitable instructional interventions, evaluate curriculum requirements, instructional records, monitoring results and other relevant data. This would make the connection between curriculum management and real classroom teaching stronger.

4. Leverage digital data to improve feedback and instructional support.

The institution should encourage supervisors' use of information from the digital system to provide detailed, timely and positive feedback. Feedback should not only point to areas for improvement, but also provide real recommendations and relevant instructional support. Then, follow-up data will be placed into the system enabling supervisors to track teachers' progress over time.

5. Provide on-going training to system users. The institution shall conduct regular professional development and technical training of the faculty members, academic leaders and instructional supervisors. Training should include not just the technical functioning of the system, but also the interpretation of data, instructional data analysis, digital curriculum management and evidence-based decision-making. It is significant because system availability alone is not enough for system usage; it is also a matter of users being able to use the system meaningfully.

6. Improve system usability and user support. The institution should routinely review Digital Curriculum Management Information System for system quality, information quality, usability, accessibility, dependability and service support. Potential areas of improvement could be functions such as automated reports, curriculum monitoring, instructional dashboards, visualizing data, alarms and supervisory tracking. Such changes would be in line with the DeLone and McLean model, especially its focus on system quality, information quality, service quality, use and benefits.

7. Develop a data-driven system of instructional oversight. Academic units need to set guidelines that clearly describe how digital curriculum and instructional data will be used in instructional preparation, classroom monitoring, feedback, intervention, and follow-up. This would create a systematic link between the information system and instructional supervision and not leave supervisors to use digital information independently.

8. Periodically evaluate system efficacy. The institution should periodically evaluate whether its enhancements to the Digital Curriculum Management Information System are having a positive impact on curriculum management and supervision of instruction. A more extensive application of the DeLone and McLean methodology would allow future assessments to include user satisfaction, system quality, information quality, service quality, frequency of system use, and organizational or instructional benefits.

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