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# Management of Learner's Information System (LIS) in Relation to Instructional Delivery

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**Abstract.** The study estimated the learner's information system (LIS) in relation to instructional delivery in South District, Tagum City Schools Division. The study used a non-experimental descriptive-correlational research design, where it utilized an adapted survey instrument to gather responses from the randomly selected teacher-respondents. Data gathered were treated using Mean scores with descriptive interpretation, Pearson r and Simple Linear Regression Analysis. Findings revealed that the classroom assessment cycle in terms of user-friendliness, security and privacy, technical support, accuracy and timeliness of data, customization, accessibility and integration with discussion was extensive, while instructional delivery in terms of engagement and participation, completion of assignments and projects, attendance and punctuality, grade point average and test and assessment scores wass moderately extensive. There was a relationship between the learner's information system management and instructional delivery. Domains of management of the learner's information system in terms of accuracy and timeliness of data, user-friendliness, accessibility and customization, and integration with discussion significantly influenced instructional delivery. Future research should address equity and ethical considerations surrounding using learners' information systems. This includes investigating potential biases in data collection and analysis, ensuring equitable access to technology resources, and evaluating the impact of data-driven decision-making on marginalized student populations.

KEY WORDS

1. management of learner's information system (LIS) 2. instructional delivery
3. data-driven decision-making 4. marginalized student populations

## 1. Introduction

Learners' information systems (LIS) have been widely used internationally as tools to support teaching and learning. In the past few years, research has focused on the effectiveness of LIS in enhancing student learning outcomes and improving educational practices. Several studies have examined the effectiveness of LIS in enhancing student learning outcomes in various educational settings. In addition to improving student learning outcomes, LIS has also positively affected educational practices. LIS can provide parents with greater visibility into their child's academic performance and facilitate communication between parents and teachers. This can help build stronger partnerships between schools and families and ultimately improve learner outcomes. In the international setting, Alghamdi and Hussin (2020) examined the factors affecting the effectiveness of LIS adoption in higher education institutions in Saudi

Arabia and found that LIS adoption positively impacted teaching practices, particularly in lesson planning and delivery. Similarly, Asempapa and Agyei (2019) found that LIS improved the management of information in secondary schools in Ghana, particularly in record-keeping and reporting. However, some studies have also identified challenges in effectively implementing LIS in educational settings. For instance, Yildirim (2021) found that the effectiveness of LIS in enhancing student achievement and motivation depended on various factors, such as the system's quality, teacher attitudes, and students' prior knowledge and skills. Additionally, Borthick and Jones (2018) found that students' satisfaction with LIS was related to their satisfaction with the learning management system (LMS), highlighting the importance of considering the integration of LIS with other educational technologies. In recent years, information systems have become increasingly popular in education, particularly in the Philippines. Learners' information systems (LIS) are designed to enhance the efficiency and effectiveness of the teaching and learning process by providing access to essential data and information about learners. The use of LIS in the Philippine education system has become more widespread in recent years. LIS is a web-based system that provides learners, teachers, and parents access to important information about learners. The system supports the teaching and learning process by providing access to data on learners' progress, academic performance, and other relevant information. According to Morales et al. (2019), LIS can be effective in improving the education system's efficiency and the teaching and learning process. One of the critical benefits of LIS is that it can improve the accuracy and reliability of learner data. LIS can help reduce errors and ensure accurate data is available to teachers and other stakeholders. This can be especially important in tracking learners' progress over time and identifying areas where learners may need additional support. Another critical benefit of LIS is that it can provide teachers with real-time access to learner data. This can help teachers monitor learners' progress more closely and identify areas where learners may be struggling. This can be particularly useful in designing personalized learning interventions for individual learners and providing timely feedback to learners and their parents. LIS can also help to enhance communication and collaboration among different stakeholders in the education system. According to Capili et al. (2018), LIS can give parents greater visibility into their child's academic performance and facilitate communication between parents and teachers. This can help build stronger partnerships between schools and families and ultimately improve learner outcomes. Pardillo (2021) states that teachers need to gain digital literacy skills, which is a significant barrier to the effective implementation of LIS. It is essential to provide teachers with appropriate training and professional development opportunities to ensure that they can make the most of the system. However, despite the potential benefits of LIS in the Davao Region, particularly in the South District of Tagum City, several challenges must be addressed to ensure its effectiveness. One key challenge is ensuring that the system is accessible to all learners, including those from low-income or marginalized communities. This requires ensuring that learners have access to the necessary technology and infrastructure and addressing issues of connectivity and digital literacy. Another challenge is ensuring that teachers are adequately trained and supported using LIS. Thus, this paper is presented.



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*1.1. Review of Significant Literature—*

*1.1.1. Learners' Information System (LIS)*—LIS has transformed education by facilitating academic data storage, management, and retrieval. Studies by Alsaif et al. (2018) and Rakhmanova et al. (2019) found that LIS enhances students' academic performance and engagement by providing instant access to educational materials and personalized learning experiences. However, Balaji et al. (2020) and Mirza et al. (2020) reported mixed results, suggesting limited implementation and subject-specific impacts.

*1.1.2. User-friendliness*—User-friendly interfaces in LIS are crucial for adoption and satisfaction. Al-Jabri et al. (2018) and Xie et al. (2019) found that a user-friendly system encourages usage and improves user satisfaction. Conversely, Wang et al. (2020) noted that system complexity hinders adoption, recommending simpler designs. Sánchez-Guerrero et al. (2022) also linked user-friendliness to improved academic performance.

*1.1.3. Accessibility*—Accessibility significantly impacts the effectiveness of LIS. Abdallah et al. (2018) and Chellamuthu et al. (2021) highlighted that easily accessible LIS are more frequently used and associated with better academic outcomes. Balta et al. (2019) and Othman et al. (2022) emphasized the need for accessible systems for students with disabilities and those in rural areas to ensure equitable usage.

*1.1.4. Customization*—Customization in LIS addresses diverse learner needs, enhancing engagement and academic performance. Studies by Hu, Li, and Li (2018) and Alqurashi and Almutairi (2018) found that personalized learning environments increase satisfaction and motivation. Shabaninejad et al. (2018) and Dhir et al. (2019) also reported improved learning experiences and academic performance with customized feedback and content.

*1.1.5. Integration with Instruction*—Integrating LIS with instructional methods, such as flipped classrooms and mobile learning systems, improves engagement and learning outcomes. Kim and Lee (2018) and Liu and Wang (2019) found that such integration enhances academic achievement and satisfaction. Demirhan and Balta (2021) highlighted the importance of immediate feedback, while Chen and Cheng (2022) emphasized collaborative opportunities through social learning networks.

*1.1.6. Security and Privacy*—Security and privacy are critical for maintaining trust and ensuring the effective use of LIS. Studies by Sim and Tan (2018) and Choi et al. (2020) stressed the importance of protecting user data to enhance trust. Asadi and Estaji (2021) noted the need for compliance with regulations like GDPR to ensure data security. Afroz et al. (2022) highlighted the impact of cybersecurity measures on system reliability and availability.

*1.2. Theoretical Framework*—The Learners' Information System (LIS) is an essential tool that aims to improve the quality of education by providing accurate and timely information about learners' academic performance. The LIS is a web-based system that collects and manages data related to learners' educational records, such as grades, attendance, and other relevant information. The theory behind the LIS is that it can help educators identify learners who need extra support and provide targeted interventions to improve their academic performance. The theory of learners' information systems is based on the premise that the effective use of technology can significantly enhance students' learning experiences and academic performance. According to this theory, a well-designed and adequately implemented learners' information system can provide students access to various educational resources, facilitate collaboration and communication with teachers and peers, and support personalized and adaptive learning experiences. One of the critical components of the theory of learners' information systems is the concept of digital



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literacy. Digital literacy is effectively using digital tools and resources to communicate, collaborate, create, and evaluate information. According to Warschauer and Matuchniak (2018), digital literacy is essential for success in the 21st century. Learners' information systems are designed to support the development of digital literacy by providing students with opportunities to use digital tools and resources meaningfully and purposefully. Another critical aspect of the theory of learners' information systems is the concept of personalized learning. Personalized learning refers to an approach to education that tailors instruction to individual students' specific needs, interests, and abilities. According to Brusilovsky et al. (2018), learners' information systems can support personalized learning by providing students with access to adaptive learning technologies that adjust instruction based on student performance and learning style. This can help to ensure that students receive the support they need to succeed academically and reach their full potential. The theory of learners' information systems also emphasizes the importance of collaboration and communication. According to Wang and Chen (2018), learners' information systems can facilitate cooperation and communication between students and teachers, as well as among students themselves. By providing students with tools and platforms for online discussion, group work, and peer feedback, learners' information systems can help to create a more engaging and interactive learning environment that fosters social and cognitive development. Furthermore, the theory of learners' information systems highlights the role of technology in promoting equity and access in education. According to Young et al. (2018), learners' information systems can help address educational inequality issues by providing students with access to high-quality academic resources, regardless of their geographic location or socio-economic background. This can help to level the playing field and ensure that all students have the opportunity to succeed academically. Finally, the theory of learners' information systems emphasizes the importance of continuous improvement and evaluation. According to Bernard et al. (2018), effective implementation of learners' information systems requires ongoing evaluation and refinement to ensure that the system meets the needs of students and teachers. This can involve gathering feedback from students and teachers, analyzing student performance data, and adjusting the system as necessary to improve its effectiveness. In conclusion, the theory of learners' information systems is based on the idea that technology can enhance students' learning experiences and academic performance. This theory highlights the importance of digital literacy, personalized learning, collaboration and communication, equity and access, and continuous improvement and evaluation. By understanding and implementing the principles of this theory, educators can create more engaging and effective learning environments that help students reach their full potential. Figure 1 below shows the association between the information system effectiveness and the learners' performance given respective indicators. In recent years, the use of learners' information systems has become increasingly popular as a means to enhance learners' performance. These systems provide personalized learning experiences by collecting data on learners' activities, preferences, and progress and using this information to tailor instruction to the individual needs of each learner. The ultimate goal is to improve learner outcomes, such as academic achievement and engagement. One of the key ways in which learners' information systems can enhance performance is by providing personalized feedback. This feedback can help learners identify areas where they need to improve and can also highlight their strengths. In a study conducted by Cheng and Yang (2019), learners who received personalized feedback using a learners' information system showed



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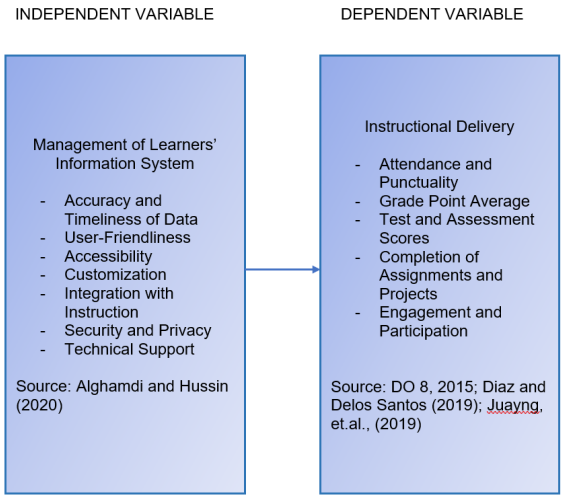


Fig. 1. Conceptual Framework of the Study

significantly improved learning outcomes compared to those who did not receive customized feedback. The authors suggest that this is because the personalized feedback helped learners self-regulate their learning and make adjustments as needed. Another way learners' information systems can enhance performance is by providing learners with access to a range of resources and activities tailored to their needs and interests. For example, a learner's information system may suggest specific resources based on their past activities and preferences. This can help learners stay engaged with the learning process and motivated to continue learning. In a study by Chen, Liu, and Liu (2020), learners who used a learners' information system that provided personalized recommendations for resources showed higher engagement and achievement levels than those who did not use the system. In addition to providing personalized feedback and resources, learners' information systems can also help learners develop important learning skills. For example, a system may allow learners to practice critical thinking, problem-solving, and collaboration. In a study by Joksimović et al. (2018), learners who used a learners' information system that included collaborative activities showed significant improvements in their critical thinking skills compared to those who did not use the system. The authors suggest that the collaborative activities provided learners with opportunities to practice and develop these skills. Finally, learners' information systems can help to support learner autonomy and self-regulation. By providing learners with access to data on their learning activities and progress, learners can control their learning and become more self-directed. In a study by Güzer and Caner (2018), learners who used a learners' information system that provided access to their learning analytics showed higher self-regulated learning levels than those who did not use the system. In conclusion, the application of learners' information systems can significantly impact their performance. By providing personalized feedback, resources, and opportunities for skill development and supporting learner autonomy and self-regulation, learners' information systems can enhance the learning experience and improve learner outcomes. As technology continues to advance, learners' information systems will become even more sophisticated, providing even greater benefits to learners.


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*1.3. Statement of the Problem*—The study was purposely conducted to assess the learner's information system (LIS) about instructional delivery in South District, Tagum City Schools Division. This specifically sought to answer the following statement of the problem:

(1) What is the extent of the management of the learners' information system in terms of;
    (1) accuracy and timeliness of data;
    (2) user-friendliness;
    (3) accessibility;
    (4) customization;
    (5) integration with instruction;
    (6) security and privacy, and
    (7) technical support?
(2) What is the extent of instructional delivery in terms of;
    (1) attendance and punctuality;
    (2) grade point average;
    (3) test and assessment scores;
    (4) completion of assignments and projects, and
    (5) engagement and participation?
(3) Is there a significant correlation between the learner's information system management and instructional delivery?
(4) Which of the management domains of the learner's information system significantly influence instructional delivery?

*1.4. Hypotheses*—To provide empirical evidence given the posed theoretical and conceptual frameworks as claimed by the study, null hypotheses were tested at 0.05 alpha level of significance, stating: Ho 1: There is no significant correlation between management of the learner's information system and instructional delivery; and, Ho 2: None of the domains of management of the learner's information system significantly influence instructional delivery.

This proposed study entitled Effectiveness of Learners' information system and its Association with Learners' Performance will be beneficial to various stakeholders. Results will be of significance to the following:

School Principal and Administrators. The study provides the school principal with valuable insights into the effectiveness of the learners' information system and its impact on learners' performance. This information can aid the principal in making informed decisions on improving the system and enhancing learners' performance. The study can assist the principal in determining the allocation of resources towards developing and implementing the learners' information system. This includes investment in technology and personnel training. The study can inform the principal on improving the instruction to make it more engaging and interactive, thus promoting learners' performance. Using the learners' information system can enhance the delivery of instruction, leading to improved learning outcomes. The study can serve as a benchmark for assessing the accountability of the school principal in ensuring the effectiveness of the learners' information system and improving learners' performance. The study can encourage the principal to promote innovation in the delivery of instruction by utilizing the learners' information system. This can enhance the competitiveness of the school and promote better learning outcomes for learners.



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Teachers. By understanding the effectiveness of the learners' information system, teachers can modify their teaching strategies to enhance student learning. They can use the system to identify students' strengths and weaknesses and tailor their teaching to meet the needs of individual students. The study can help teachers understand how to use the information system to engage students more effectively. For instance, they can use the system to provide personalized feedback that motivates students to participate more actively in their learning. The study can help teachers make data-driven decisions about student learning. By analyzing data from the information system, teachers can identify patterns and trends in student performance, which can inform decisions about curriculum design, assessment methods, and teaching strategies. Teachers can enhance student outcomes by improving their teaching strategies and using data to inform their decision-making. They can identify areas where students need additional support and provide more targeted instruction to help them succeed. Future Researchers. Firstly, it can serve as a basis for further research on the topic, allowing for refining and expanding existing theories and frameworks. This can lead to a deeper understanding of the mechanisms and processes underlying the use of learners' information systems and their impact on learners' performance. Secondly, the study can inform the development of new interventions and approaches that can enhance the effectiveness of learners' information systems in promoting better learning outcomes. This can be particularly valuable for researchers interested in designing and implementing technology-supported educational interventions. Lastly, the study's findings can also have practical implications for educational policymakers, administrators, and practitioners, providing insights into the potential benefits and challenges of implementing learners' information systems in different educational contexts. Future researchers can build on these insights to develop more context-specific interventions and strategies that can improve the quality of education and enhance learners' performance.

This study laid out the terms that are conceptually and operationally defined to set up better understanding and reference when discussions of results are taken up in the preceding chapters of the study.

Effectiveness of Learners' Information System. Learners' information system effectiveness refers to how a system for managing learner information, such as a Learning Management System (LMS) or Student Information System (SIS), supports and enhances the learning process. This effectiveness can be measured by various indicators, including learner performance, engagement, and satisfaction, as well as the efficiency and ease of use of the system for both learners and educators. Ultimately, the goal of an effective learners' information system is to improve the overall quality of education and help learners achieve their learning objectives. In this study, the term is used as the independent variable where indicators are accuracy and timeliness of data, user-friendliness, accessibility, customization, integration with instruction, security and privacy and technical support.

Learners' Performance. Learners' performance refers to the level of achievement or success exhibited by learners in their academic pursuits. It encompasses a range of factors, including but not limited to their knowledge and understanding of the subject matter, their ability to apply that knowledge to solve problems, their critical thinking and analytical skills, their communication and collaboration skills, and their overall engagement and motivation in the learning process. Learners' performance is often measured through various forms of assessments, such as exams, assignments, projects, and presentations. In this study, the term is used as the dependent variable where indicators are attendance and punctuality, grade point average,, test



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and assessment scores, completion of assignment and projects, and engagement in participation.

## 2. Method

This chapter contains the processes and steps for conducting the study. This includes the selection of the design of the study, the respondents and its sampling method, the research instruments to be used in data gathering, the procedure, and the ethical consideration and lastly, the data analysis. These steps are considered essentials to assume appropriateness and correctness to produce sound data process collection, analysis, and interpretation.

*2.1. Research Design*—This study used non-experimental descriptive-correlational and predictive research design. Descriptive research design was used to describe and document the characteristics of a phenomenon or population. It involves collecting data using observation, surveys, or other methods and summarizing it using measures such as means, medians, and frequencies. Descriptive research was often used as a preliminary step in research and can help to identify patterns and relationships that could be further investigated using other research designs. (Pallant, 2020). The study on the effectiveness of learners' information systems and its association with learners' performance is highly applicable to correlational research design. In this research design, the study aimed to investigate the relationship between two or more variables. In this case, the learners' information system can be considered independent, while learners' performance is the dependent variable. The study could help future researchers identify the factors that affect learners' performance in the context of an information system. According to Brusilovsky and Somyürek (2018), correlational research design is helpful in investigating the relationship between variables in educational settings. This design can provide valuable insights into the effectiveness of learners' information systems in improving their performance. Furthermore, Cheng and Yang (2019) stated that correlational research design can help identify the factors that contribute to the success or failure of an online learning environment, such as the learners' information system. In conclusion, the study on the effectiveness of learners' information system and its association with learners' performance is essential in the context of correlational research design. It can help future researchers identify the factors that affect learners' performance in the presence of an information system. By understanding the relationship between these variables, educators and researchers can develop strategies to enhance the effectiveness of the learners' information system and improve learners' performance.

*2.2. Research Respondents*—The study's respondents were elementary school teachers in the South District of Tagum City Schools Division. She used the Raosoft sample size calculator, where a total of 90 respondents were taken randomly from each respective School within the South District. Once randomly determined, the respondents were informed through online platform and face-to-face, considering the availability of the Wifi Connections; they were likewise oriented about the purpose and importance of the study and its contribution to their professional development status. These teacher-respondents were the teachers who handled tasks such as involvement and application of learners' information system within teaching three years and above in the public-school service, where skills in integrating the programs and likewise trying to improve the system in tracking learners' performance and their compe-



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tence in responding to the queries of the study. They were qualified for they are expected to have performed and contributed to the betterment of the schools and the learners' awareness and educational stages given new normal learning system during SY 2022-2023. Further, they have frequently engaged in various seminars and trainings, including SLAC sessions on the pedagogies of integrating pedagogical skills in drug education and the school management and curriculum development delivery system. Moreover, assumptions in the respective schedule of classes during data collection were explicitly discussed with the respondents, and even observance of health protocol was strictly implemented based on Executive Order 31 S 2020 to avoid possible and lower the risk of contamination.

*2.3. Research Instrument*—This research study used the adapted instrument from reviewed literature and related studies. The researcher took time gathering and reading reviews of related literature to come up with concepts for the content that support the instrument and its corresponding strands in articulating the set of question items, reducing threats to validity. Items were adapted from the reviewed literature, as argued by the authors. The survey questionnaire had two parts: one determining the extent of the effectiveness of learners' information systems as perceived by the teachers in terms of accuracy and timeliness, user-friendliness, accessibility, customization, integration with instruction, security and privacy, and technical support. Likewise, the second part of the survey measured the extent of learners' performance in terms of attendance and punctuality, grade pint average, test and assessment scores, completion of assignments and projects, and engagement and participation. Further, the survey statements were subjected to a test-retest or validity and reliability testing using Cronbach Alpha at a .05 level of confidence and generated an alpha Cronbach of 0.886, which means that 88.6 percent level of confidence in the validity and reliability of the survey statement constructs (Pallant 2010). The questionnaire used a 5-point Likert scale to determine the extent of management learners' information system. Scale, descriptive rating, and interpretation are provided below:

| **Scale** | **Descriptive Rating** | **Interpretation** |
|---|---|---|
| 4.20 – 5.00 | Very Extensive | The management of learners' information system is always manifested |
| 3.40 – 4.19 | Extensive | The management of learners' information system is oftentimes manifested |
| 2.60 – 3.39 | Moderately Extensive | The management of learners' information system is sometimes manifested |
| 1.80 – 2.59 | Less Extensive | The management of learners' information system is rarely manifested |
| 1.00 – 1.79 | Not Extensive | The management of learners' information system is not manifested |

Meanwhile, to determine the extent of instructional delivery, a 5-point Likert scale was used in this study, as presented below;



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| Scale | Descriptive Rating | Interpretation |
|---|---|---|
| 4.20 – 5.00 | Very Extensive | The instructional delivery is always manifested |
| 3.40 – 4.19 | Extensive | The instructional delivery is oftentimes manifested |
| 2.60 – 3.39 | Moderately Extensive | The instructional delivery is sometimes manifested |
| 1.80 – 2.59 | Less Extensive | The instructional delivery is rarely manifested |
| 1.00 – 1.79 | Not Extensive | The instructional delivery is not manifested |

*2.4. Data Gathering Procedure*—The preceding statements explain the data gathering procedure steps that the researcher must comprehensively consider and follow. The statements are based on the policies and guidelines of the Rizal Memorial Colleges regarding the gathering of pertinent data, most especially in the current full face-to-face interaction. Permission to conduct the study. On the second week of March 2023, the researcher started conceptualizing the thesis proposal's contents and objective. She then, prepares documents such as letter requests in the conduct of the study. The research study underwent and adopted the standard procedures of ethics in data collection (Creswell, 2004). As soon as the research proposal presentation was approved by the panel of members and the dean of the college, the researcher wrote and sent a letter of permission to the office of the Schools Division Superintendent of Tagum City, through the channel and sought permission to collect data and conduct the study within the Elementary schools of South District, Tagum City Schools Division. Distribution and retrieval of the questionnaire. The researcher prepared and created a Google sheet form for the online survey collection process, which was sent to the randomly selected respondents via email addresses and to respondents who do not have access to the internet. Likewise, a prepared hard copy of the survey sheets was given to each of them. Once done, link was sent, and right away responses were generated, thus, ready for sorting, analyzing, and interpreting. This activity was done right after the approval of the Schools Division Superintendent to proceed in data gathering which commenced on the third week of April 2023. Collation and statistical treatment of data. The preliminary analysis results were given to the thesis adviser during the second week of March 2023. For coaching and in terms of statistical treatment, the thesis adviser sought the assistance of the graduate school statistician for providing technical discussions in running the data and its interpretations and implications of the study, sometime on the fourth week of April 2023, and further deepening the analysis to make more meaning with the interpretations of results on the second week of May 2023.

*2.5. Ethical Considerations*—The researcher sought guidance and advice from the thesis adviser. This resulted to proper authorization and consent were obtained from the respondents of the study to ensure that all their rights would be fully protected, specifically in handling the data, however, not limited to: Voluntary Participation. Respondents were not coerced into being involved in any way; the researcher made a point that it is crucial they



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are able to stop the questions or change their minds about being engaged at any time. Further, the participants were asked if they can take part of the research as respondents in data gathering. In this manner, confidence in the responses of the data gathered is high since the manner and behavior of the respondents are voluntary. Privacy and Confidentiality. The principle of confidentiality in ethical research states that the identity of the participants must remain anonymous and the information they supply must be respected. This means that in this study, the researcher took steps to ensure that research data remains confidential. A respondent is more likely to provide honest responses when their identity is not going to be exposed. Breach of confidentiality is a potential risk of participating in research. To protect participants' confidentiality, the researcher stored the documents or let the respondents sign consent forms in a locked file cabinet and removed personal identifiers from the study documents as soon as possible. Informed Consent Process. Informed consent is one of the founding principles of research ethics. It intends that human participants can enter research freely (voluntarily) with full information about what it means for them to take part, and that they give consent before they enter the research. In this study, informed consent is crucial in research as it ensures individuals have an informed choice about whether to participate in a research study. The Rizal Memorial College Graduate Studies Department ensured that several regulations and policies stipulate the requirements for obtaining informed consent from research participants. Risks. Moreover, the researcher informed the respondents that their participation in the survey would not bring any foreseeable risks to their personal health or well-being. Thus, the respondents were informed that in the event that they become upset or distressed as a result of answering the questions that are part of the researcher's standard battery, then the researcher would have helped them obtain a referral for the respondent to see a trained professional who can help process these feelings. The researcher shall then make an alternative to complete the data collection. Benefits. Further, the observable benefits of the study were immediately disseminated to the stakeholders. The findings of the study generated facts which are important for the enhancement of the student's well-being (Koenig and MacMillan, 2004). Plagiarism. Plagiarism constitutes a breach of academic integrity and represents substandard scholarship. Plagiarism can have a lasting impact on a future career, regardless of whether it was intentional. The responsibility to avoid plagiarism belongs with the student or researcher. To avoid plagiarism, this study provided a reference to that source to indicate where the original information came from, including developing good research habits, good time management, and taking responsibility for own learning. The researcher further took time in paraphrasing a source too closely, including a direct quote without quotation marks and copying elements of different sources, and pasting them into a new document. Fabrication. The researcher guaranteed that provisions on deceit and conflict of interest aspects were strictly observed. The researcher assured the respondents that the study was done with honesty and transparency. Evidence show that the benefit of misleading the respondents outweighs any potential harm to them (Creswell, 2014). The researcher assisted the respondents satisfactorily and talk through the process and the outcome of the study. They were given a general idea of what the researcher was investigating and why such a study was conducted. Their role and contribution to the study were promptly explained. Falsification. This study complied with the citation rules set based on the APA 7th edition citation format to avoid misrepresenting work or altering any data gathered in the study (Cohen, 2020). The data and information that were written were



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presented in the most accurate way possible. Conflict of Interest. The researcher ensured that conflict of interest (COI) in this study is highly observed (Lotich, 2011). No set of conditions as to professional judgment concerning primary interest as the respondents' welfare or the validity of the research tends to influence by the secondary interest such as financial or academic gains or any forms of recognition. Deceit. The writings of this paper did not utilize any form of untruthfulness to harm anyone, especially the respondents, since all information written was checked and validated by the panel of experts (Lakey and Cohen, 2020). Permission from the Organization/Location. Prior to the conduct of the study, the procurement of a letter to conduct a study duly signed by the Dean of Graduate School is basically provided by the researcher to the Schools Division Superintendent of Tagum City. Then, the reply from the said office allowing the researcher to conduct the study was delivered to the School principals where the conduct of the study was done. Authorship. Finally, upon the approval of the final version to be published, the researcher considered for the authorship of the adviser and few other individuals such as colleagues who gave substantial contributions to the conception and design of the study, or acquisition of data, or analysis and interpretation of data and drafting the manuscript or revising it critically for important intellectual content as co-authors (Lotich, 2011). Respondents can contact the researcher at the mobile number and email address given on the informed consent form if they have questions, concerns, or complaints about the research. The researcher also ensured that the benefits of the study would be shared during meetings and conferences with stakeholders as part of the audience.

*2.6. Data Analysis*—Mean scores and standard deviation were used to address statement problems posed in number one, on extent of management of learners' information system, and statement problem number two, on the extent of instructional delivery in South District of Tagum City Schools Division. Pearson Product Moment Correlation Coefficient or Pearson-r was used to determine its strength/direction significant relationship between management of learners' information system and the instructional delivery. Simple Linear Regression analysis was used to address statement problem number 4 on the indicators of management of learners' information systems that significantly influence instructional delivery (Pallant, 2000) and (Gujarati, 2000). All data processing and analysis were performed using Jeffrey's Statistics Amazing Program (JASP) version 0.12.20. When results yielded, discussions and interpretations followed.

## 3. Results and Discussion

This chapter deals with the presentation, analysis, and interpretation of data gathered. Tabular and textual presentation is presented to make more meaningful in the analysis and drawing out of implications. This further shows evidence to support the claim posed in the hypothesis.

*3.1. Management of The Learners' Information System*—The emergence of digital technology has brought a significant transformation in the education sector. One of the most notable innovations is the development of the learners' information system (LIS). LIS is an integrated platform that facilitates academic data storage, management, and retrieval. This system aims to enhance the learning experience by giving students easy access to academic resources, monitoring their academic progress, and communicating with their teachers and peers. According



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to Alsaif et al. (2018), LIS positively affects academic achievement. In their study, they found that LIS enhances students' learning experience by providing them with instant access to academic materials, reducing the time spent searching for information and enhancing their comprehension and retention of information. Similarly, a study conducted by Rakhmanova et al. (2019) found that LIS improves students' academic performance by providing them with personalized learning experiences, enabling them to monitor their academic progress, and providing them with opportunities to interact with their teachers and peers. Meanwhile, student engagement is an essential aspect of the learning process. It refers to students' degree of involvement, enthusiasm, and commitment towards their studies. Several studies have been conducted to investigate the effectiveness of LIS on student engagement. According to Alzahrani (2018), LIS positively impacts student engagement. In their study, they found that LIS increases students' motivation to learn by providing them with access to a variety of learning resources and enhancing their interaction with their teachers and peers. Similarly, in a study conducted by Balaji et al. (2020), it was found that LIS has a positive impact on student satisfaction. The authors suggested that the reason for the positive impact is due to the convenience and flexibility that LIS provides to students. However, a study conducted by Khalid et al. (2021) found that LIS has no significant impact on student satisfaction. The authors suggested that the lack of impact could be due to students' limited use of LIS and the need for more training on how to use the system effectively.

Table 1 shows the extent of management of the learners' information system in terms of accuracy and timeliness of data. The result is focused on the highest and lowest mean ratings of indicators, which are as follows: Crucial in identifying areas where learners may need additional support or interventions (4.20) is always manifested; Critical in supporting informed decision-making by educators, administrators, and other stakeholders (4.00) and Ensures that accurate and timely data is available to all stakeholders in a manner that is easy to access and understand (3.60) are oftentimes manifested; while, Enables educators to tailor their teaching strategies and interventions to better meet the needs of individual learners (3.20) and Play a vital role in tracking learner progress over time, identifying trends and patterns, and evaluating the effectiveness of educational programs and initiatives (310) are sometimes manifested. The overall mean rating of 3.66 denotes the extent of management of the learners' information system in terms of accuracy and timeliness of data is extensive, thus, oftentimes manifested.

In recent years, the use of Learners' Information Systems (LIS) has become increasingly popular in educational institutions worldwide. LIS is an electronic platform that provides teachers and students easy access to academic resources, educational materials, and tools to enhance learning and teaching. One of the critical aspects of LIS is the accuracy and timeliness of the data it provides. According to Al-Wahaibi et al. (2018), data accuracy is a vital factor contributing to the effectiveness of LIS. In their study, they found that the accuracy of data in LIS is critical in providing teachers and students with reliable information that can be used for decision-making. The study also showed that inaccurate data in LIS could lead to ineffective decision-making, which could negatively impact learning outcomes. Similarly, a study conducted by Al-Sudairy et al. (2020) found that the accuracy of data in LIS has a significant impact on learning outcomes. The study showed that when accurate data is available in LIS, it



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Table 1. Extent of Management of The Learners' Information System in Terms of accuracy and timeliness of data

| No | Accuracy And Timeliness of Data | Mean | Descriptive Equivalent |
|---|---|---|---|
| 1 | Critical in supporting informed decision-making by educators, administrators, and other stakeholders | 4.00 | Extensive |
| 2 | Ensures that accurate and timely data is available to all stakeholders in a manner that is easy to access and understand | 3.60 | Extensive |
| 3 | Crucial in identifying areas where learners may need additional support or interventions | 4.20 | Very Extensive |
| 4 | Enables educators to tailor their teaching strategies and interventions to better meet the needs of individual learners | 3.20 | Moderately Extensive |
| 5 | Play a vital role in tracking learner progress over time, identifying trends and patterns, and evaluating the effectiveness of educational programs and initiatives | 3.10 | Moderately Extensive |
| | **Overall Mean** | **3.66** | **Extensive** |

enables teachers to identify the strengths and weaknesses of their students and design instructional strategies tailored to meet their individual needs. The study also showed that accurate data in LIS improves communication between teachers, students, and parents, which can positively impact learning outcomes. The accuracy of data in LIS is crucial because it ensures that the information provided to teachers and students is reliable and trustworthy. Inaccurate data can lead to wrong assumptions, decisions, and actions, which can negatively impact learning outcomes. For example, if a student's academic progress is incorrectly recorded in LIS, it may lead to incorrect assumptions about the student's strengths and weaknesses, which may result in an inappropriate instructional strategy being implemented. This could lead to the student's academic performance declining instead of improving.

Table 2 shows the extent of management of the learners' information system in terms of user-friendliness. The result is focused on the highest and lowest mean ratings of indicators which are as follows: Making it easy for educators, administrators, and other stakeholders to access and use the data they need to make informed decisions (4.50) and (4.35) are always manifested; Increase transparency and accountability in education, by making it easier for stakeholders to access and share information (4.15) and Critical in promoting adoption and usage by stakeholders, which in turn can lead to better decision-making and improved outcomes for learners (4.10) are oftentimes mani-



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fested; while, Promote collaboration and communication among stakeholders, by providing a common platform for sharing and discussing data (4.00) is sometimes manifested. The overall mean rating of 4.22 denotes the extent of management of the learners' information system regarding user-friendliness, which is very extensive and, thus, always manifested. One of the critical factors that affect the effectiveness of LIS is the user-friendliness of the system. The user-friendly interface allows users to navigate the system easily, access information quickly, and perform tasks efficiently. A study by Al-Jabri et al. (2018) investigated the impact of user-friendliness on LIS adoption in Omani higher education institutions. The study found that user-friendliness is a crucial factor influencing LIS's acceptance.

Table 2. Extent of Management of The Learners' Information System in Terms of User-Friendliness

| No | User-Friendliness | Mean | Descriptive Equivalent |
|---|---|---|---|
| 1 | Making it easy for educators, administrators, and other stakeholders to access and use the data they need to make informed decisions | 4.50 | Very Extensive |
| 2 | Critical in promoting adoption and usage by stakeholders, which in turn can lead to better decision-making and improved outcomes for learners | 4.10 | Extensive |
| 3 | Reduce the time and effort required to access and analyze data | 4.35 | Very Extensive |
| 4 | Increase transparency and accountability in education, by making it easier for stakeholders to access and share information | 4.15 | Extensive |
| 5 | Promote collaboration and communication among stakeholders, by providing a common platform for sharing and discussing data | 4.00 | Extensive |
| | **Overall Mean** | **4.22** | **Very Extensive** |

Similarly, in a study conducted by Xie et al. (2019), it was found that user-friendly interfaces in LIS significantly improved the students' satisfaction with the system. The study recommended that LIS designers should focus on developing user-friendly interfaces to improve the users' experience. In contrast, in a study conducted by Wang et al. (2020), it was found that the complexity of LIS negatively affects the adoption and usage of the system. The study recommended that designers should focus on simplifying the system and making it more user-friendly to enhance its effectiveness. Another study by Al-Mashaqba et al. (2021) investigated the impact of user-friendliness on LIS acceptance in Jordanian universities. The study found that user-friendliness is a critical factor that influences the acceptance of LIS. A user-friendly system improves the users' satisfaction and encourages them to adopt it. Furthermore, a study by Sánchez-Guerrero et al. (2022) investigated the relationship between user-friendliness and students' academic performance. The study found that a user-friendly interface positively impacts students' academic performance. A user-friendly system allows students to access the information they need quickly, enabling them to focus on their studies. The study recommended that LIS designers should focus on developing user-friendly inter-



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faces that are easy to use and navigate.

Table 3 shows the extent of management of the learners' information system in terms of accessibility. The result is focused on the highest and lowest mean ratings of indicators which are as follows: Accessibility is coupled with security, ensuring that data is accessible only to authorized users in a secure and protected environment (4.20) and Facilitate communication and collaboration among stakeholders, by providing a shared platform for accessing and sharing data (4.15) are oftentimes manifested, while, Ensures that data is accessible to all stakeholders, regardless of their location or technical expertise (3.15) and Providing multiple access points, such as web-based portals and mobile applications, an effective learners' information system can improve accessibility and convenience for stakeholders (3.00) are sometimes manifested, and Promote equity in education, by ensuring that all stakeholders have equal access to data and information (2.35) is rarely manifested. The overall mean rating of 3.37 denotes that the extent of management of the learners' information system in terms of accessibility is moderately extensive and, thus, sometimes manifested.

Table 3. Extent of Management of The Learners' Information System in Terms of Accessibility

| No | Accessibility | Mean | Descriptive Equivalent |
|---|---|---|---|
| 1 | Ensures that data is accessible to all stakeholders, regardless of their location or technical expertise | 3.15 | Moderately Extensive |
| 2 | Providing multiple access points, such as web-based portals and mobile applications, an effective learners' information system can improve accessibility and convenience for stakeholders | 3.00 | Moderately Extensive |
| 3 | Promote equity in education, by ensuring that all stakeholders have equal access to data and information | 2.35 | Less Extensive |
| 4 | Facilitate communication and collaboration among stakeholders, by providing a shared platform for accessing and sharing data | 4.15 | Extensive |
| 5 | Accessibility is coupled with security, ensuring that data is accessible only to authorized users in a secure and protected environment | 4.20 | Extensive |
| | **Overall Mean** | **3.37** | **Moderately Extensive** |

In a study conducted by Abdallah et al. (2018), the authors found that accessibility is a key factor that influences the use of LIS by students. The study revealed that students are more likely to use LIS that are easily accessible and user-friendly. Moreover, the study found that students who use LIS that are highly accessible have better academic performance compared to those who use less accessible systems. The authors concluded that LIS designers should focus on making their systems more accessible and user-friendly to improve students' academic performance. Similarly, in a study conducted by Balta et al. (2019), the authors investigated the impact of accessibility on the use of LIS by students with disabilities. The study found that students with disabilities faced several accessibility challenges when using LIS, including



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difficulties in accessing information and navigating the system. The authors suggested that LIS designers should focus on making their systems more accessible to students with disabilities to ensure that they can use the systems effectively. In a more recent study, Chellamuthu et al. (2021) investigated the impact of accessibility on the adoption and usage of LIS by teachers. The authors found that teachers are more likely to adopt and use LIS that are easily accessible and compatible with their existing technological infrastructure. Moreover, the study found that teachers who use highly accessible LIS are more likely to use the system more frequently and have better academic outcomes compared to those who use less accessible systems. Furthermore, a study by Othman et al. (2022) investigated the impact of accessibility on the usage of LIS by rural students in Malaysia. The study found that students from rural areas faced several accessibility challenges, including poor internet connectivity and lack of access to technological infrastructure. The authors suggested that LIS designers should focus on making their systems more accessible to students in rural areas to ensure that they can use the systems effectively.

Table 4 shows the extent of management of the learners' information system in terms of customization. The result is focused on the highest and lowest mean ratings of indicators which are as follows: Providing customizable dashboards and reports, an effective learners' information system can help stakeholders quickly and easily access the data that is most relevant to their needs (4.20) is always manifested, while, Allow for customization to meet the unique needs and preferences of individual users (3.40) is oftentimes manifested, and Improve engagement and user adoption, by allowing stakeholders to tailor the system to their own preferences and workflow (3.35), Promote continuous improvement in education, by allowing stakeholders to adapt and refine their strategies based on the insights they gain from the data (3.20) and Allow for customization of data input and output, ensuring that stakeholders can input data in the formats they prefer, and output data in the formats that are most useful for their needs (3.15) are sometimes manifested. The overall mean rating of 3.46 denotes extent of management of the learners' information system in terms of customization is extensive, thus, oftentimes manifested. A customized information system is tailored to meet individual learners' specific needs and preferences, providing them with personalized content, feedback, and support. Customization has become an important feature in modern learners' information systems (LIS) as it helps address students' diverse needs. The ability to personalize learning has been linked to better engagement, motivation, and academic performance among learners.

Hu, Li, and Li (2018) investigated the effectiveness of personalized learning in an online course. The study found that personalized learning significantly improved learners' satisfaction, engagement, and academic achievement. Personalized learning allowed learners to focus on their own interests and learning pace, leading to better learning outcomes. by Alqurashi and Almutairi (2018) examined the impact of customization on learners' motivation and engagement in an e-learning environment. The study found that students who were given the opportunity to customize their learning environment showed higher levels of motivation and engagement compared to those who did not have the same opportunity. In addition, customization in LIS has also been found to improve students' satisfaction and learning experience. For instance, a study conducted by Shabaninejad et al. (2018) investigated the impact of personal-



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Table 4. Extent of Management of The Learners' Information System in Terms of Customization

| No | Customization | Mean | Descriptive Equivalent |
|---|---|---|---|
| 1 | Allow for customization to meet the unique needs and preferences of individual users | 3.40 | Extensive |
| 2 | Providing customizable dashboards and reports, an effective learners' information system can help stakeholders quickly and easily access the data that is most relevant to their needs | 4.20 | Very Extensive |
| 3 | Improve engagement and user adoption, by allowing stakeholders to tailor the system to their own preferences and workflow | 3.35 | Moderately Extensive |
| 4 | Allow for customization of data input and output, ensuring that stakeholders can input data in the formats they prefer, and output data in the formats that are most useful for their needs | 3.15 | Moderately Extensive |
| 5 | Promote continuous improvement in education, by allowing stakeholders to adapt and refine their strategies based on the insights they gain from the data | 3.20 | Moderately Extensive |
| | **Overall Mean** | **3.46** | **Extensive** |

ized learning on students' satisfaction and learning experience. The study found that students who were given the opportunity to customize their learning environment were more satisfied and had a better learning experience compared to those who did not have the same opportunity. Similarly, another study by Dhir et al. (2019) investigated the impact of personalized adaptive feedback on students' academic performance. The study found that personalized feedback helped to improve students' academic performance significantly. Furthermore, customization has been found to be effective in addressing individual differences among learners. A study conducted by Meirav and Dvir (2019) investigated the impact of personalized learning on students' academic achievement in different learning styles. The study found that personalized learning was effective in improving students' academic achievement across different learning styles.

Table 5 shows the extent of management of the learners' information system in terms of integration with instruction. The result is focused on the highest and lowest mean ratings of indicators which are as follows: Provide educators with real-time data on learner performance, allowing for timely interventions and support (4.15) is oftentimes manifested, Promote continuous improvement in education, by enabling educators to regularly monitor learner progress and adjust instruction accordingly (3.35) and Improve accountability and transparency in education, by providing educators, administrators, and other stakeholders with insights into learner progress and outcomes (3.20) are sometimes manifested, and while, Enable educators to use data to inform their teaching practices and strategies (3.10) are sometimes manifested. The overall mean rating of 3.22 denotes extent of management of the learners' information system in terms of integration with instruction is moderately extensive, thus, sometimes manifested. Integration with instruction is a critical feature of learners' information systems that can enhance their effectiveness. By integrating with instruction, learners' information systems can provide learners with immediate feedback, access to ad-



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ditional resources, and opportunities for collaboration and discussion. Kim and Lee (2018), investigated the effects of using a learning management system (LMS) with a flipped classroom approach. The study found that integrating the LMS with instruction through the flipped classroom approach significantly improved learners' engagement, academic achievement, and overall satisfaction with the course. The LMS provided learners with access to course materials, discussion forums, and interactive activities that complemented the in-class instruction.

Table 5. Extent of Management of The Learners' Information System in Terms of Integration with Instruction

| No | Integration with Instruction | Mean | Descriptive Equivalent |
|---|---|---|---|
| 1 | Enable educators to use data to inform their teaching practices and strategies | 3.10 | Moderately Extensive |
| 2 | Identify areas where learners may need additional support, and to tailor their teaching approaches to better meet the needs of individual learners | 2.20 | Less Extensive |
| 3 | Promote continuous improvement in education, by enabling educators to regularly monitor learner progress and adjust instruction accordingly | 3.35 | Moderately Extensive |
| 4 | Provide educators with real-time data on learner performance, allowing for timely interventions and support | 4.15 | Extensive |
| 5 | Improve accountability and transparency in education, by providing educators, administrators, and other stakeholders with insights into learner progress and outcomes | 3.20 | Moderately Extensive |
| | **Overall Mean** | **3.22** | **Extensive** |

Similarly, in a study by Liu and Wang (2019), the researchers investigated the impact of integrating a mobile learning system (MLS) with traditional classroom instruction in a college-level English course. The study found that integrating the MLS with instruction significantly improved learners' engagement, learning outcomes, and overall satisfaction with the course. The MLS provided learners with access to additional resources, such as videos, quizzes, and interactive activities, that complemented the in-class instruction. Another way integration with instruction can enhance learners' information systems is by providing immediate feedback. In a study by Demirhan and Balta (2021), the researchers investigated the effects of integrating a digital feedback system (DFS) with high school physics course instruction. The study found that integrating the DFS with instruction significantly improved learners' engagement, academic achievement, and overall satisfaction with the course. The DFS provided learners with immediate feedback on their performance, which helped them to better understand their strengths and weaknesses and make necessary adjustments.

Table 6 shows the extent of management of the learners' information system in terms of security and privacy. The result is focused on the highest and lowest mean ratings of indicators which are as follows: Critical in promoting trust and confidence among stakeholders,



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and in ensuring (4.20) is always manifested, while, Regularly audited and reviewed, to identify and address any vulnerabilities or weaknesses (4.15) and Security measures to protect the privacy of learners and prevent unauthorized access to sensitive data (4.10) are oftentimes manifested, while, Provide granular access controls, allowing administrators to control who has access to which data, and to set permissions and roles accordingly (3.35) and Clear policies and guidelines regarding the handling and use of data, and are regularly trained on best practices for data protection and privacy (3.20 ) are sometimes manifested. The overall mean rating of 3.80 denotes extent of management of the learners' information system in terms of security and privacy is extensive, thus, oftentimes manifested. Security and privacy are critical features of learners' information systems that can affect their effectiveness. Learners' information systems that fail to protect user data and maintain system security adequately can result in compromised information, decreased trust in the system, and reduced usage.

Table 6. Extent of Management of The Learners' Information System in Terms of Security and Privacy

| No | Security and Privacy | Mean | Descriptive Equivalent |
|---|---|---|---|
| 1 | Security measures to protect the privacy of learners and prevent unauthorized access to sensitive data | 4.10 | Extensive |
| 2 | Critical in promoting trust and confidence among stakeholders, and in ensuring compliance with data protection regulations | 4.20 | Very Extensive |
| 3 | Provide granular access controls, allowing administrators to control who has access to which data, and to set permissions and roles accordingly | 3.35 | Moderately Extensive |
| 4 | Regularly audited and reviewed, to identify and address any vulnerabilities or weaknesses | 4.15 | Extensive |
| 5 | Clear policies and guidelines regarding the handling and use of data, and are regularly trained on best practices for data protection and privacy | 3.20 | Moderately Extensive |
| | **Overall Mean** | **3.80** | **Extensive** |

Sim and Tan (2018), investigated the importance of secure e-learning systems for online education. The study found that security and privacy are crucial factors that affect learners' trust in e-learning systems. The researchers highlighted the importance of developing secure e-learning systems that ensure user data protection, prevent unauthorized access, and maintain system security. Similarly, in a study by Choi et al. (2020), the researchers investigated the importance of privacy in learners' information systems. The study found that learners are concerned about their privacy when using online learning systems, and that their perceptions of privacy are affected by system features such as data collection and use, control over personal data, and transparency of privacy policies. The researchers suggested that online learning systems should prioritize user privacy and provide clear and transparent privacy policies to enhance user trust. Another way in which security and privacy can enhance learners' information sys-



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tems is by ensuring compliance with regulations and standards. In a study by Asadi and Estaji (2021), the researchers investigated the compliance of learning management systems (LMS) with the General Data Protection Regulation (GDPR) in higher education institutions. The study found that LMS used in higher education institutions did not fully comply with GDPR, indicating potential risks to user data protection and privacy. The researchers suggested that LMS vendors should prioritize GDPR compliance to ensure the security and privacy of user data.

Table 7. Extent of Management of The Learners' Information System in Terms of Technical Support

| No | Technical Support | Mean | Descriptive Equivalent |
|---|---|---|---|
| 1 | Supported by a dedicated technical support team that can quickly respond to issues and resolve technical problems | 4.10 | Extensive |
| 2 | Available to all stakeholders, including administrators, educators, learners, and parents, and should be provided through multiple channels, such as phone, email, and chat | 3.10 | Moderately Extensive |
| 3 | Technical support is proactive, anticipating and identifying potential issues before they occur and taking steps to prevent them | 4.00 | Extensive |
| 4 | Provided by knowledgeable and experienced staff who are familiar with the system and can provide guidance and advice on best practices for its use | 4.15 | Extensive |
| 5 | Provide stakeholders with a knowledge base or help center, containing resources such as FAQs, tutorials, and user guides, to enable self-service support and empower stakeholders to troubleshoot common issues on their own | 3.20 | Moderately Extensive |
| | **Overall Mean** | **3.71** | **Extensive** |

Table 7 shows the extent of management of the learners' information system in terms of technical support. The result is focused on the highest and lowest mean ratings of indicators which are as follows: Provided by knowledgeable and experienced staff who are familiar with the system and can provide guidance and advice on best practices for its use (4.15), Supported by a dedicated technical support team that can quickly respond to issues and resolve technical problems (4.10) and Technical support is proactive, anticipating and identifying potential issues before they occur and taking steps to prevent them (4.00) are oftentimes manifested, while, Provide stakeholders with a knowledge base or help center, containing resources such as FAQs, tutorials, and user guides, to enable self-service support and empower stakeholders to troubleshoot common issues on their own (3.20) and Available to all stakeholders, including administrators, educators, learners, and parents, and should be provided through multiple channels, such as phone, email, and chat (3.10) are sometimes manifested. The overall mean rating of 3.71 denotes the extent of management of the learners' information system in terms of extensive technical support is extensive, thus, is oftentimes manifested.



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Table 8. Summary on The Management of The Learners' Information System

| No | Aspect | Mean | Descriptive Equivalent |
|---|---|---|---|
| 1 | Accuracy and Timeliness of Data | 3.66 | Extensive |
| 2 | User-Friendliness | 4.22 | Very Extensive |
| 3 | Accessibility | 3.37 | Moderately Extensive |
| 4 | Customization | 3.46 | Extensive |
| 5 | Integration with Discussion | 3.22 | Moderately Extensive |
| 6 | Security and Privacy | 3.80 | Extensive |
| 7 | Technical Support | 3.73 | Extensive |
| | **Overall Mean** | **3.63** | **Extensive** |

Table 8 shows the summary of the extent of classroom assessment cycle. The result is focused on the highest and lowest mean ratings of indicators which are as follows: user-friendliness (4.22) ia always manifested; security and privacy (3.80), technical support (3.73), accuracy and timeliness of data (3.66) and customization (3.46) are oftentimes manifested, while, accessibility (3.37) and integration with discussion (3.22) are sometimes manifested. The overall mean rating of 3.63 denotes the extent of management of the learners' information system is extensive, thus, oftentimes manifested. Balaji et al. (2020) found that LIS has a positive effect on academic performance, but the effect is not significant. The authors suggested that the reason for the lack of significant impact could be the limited implementation of LIS in some institutions. Similarly, a study conducted by Mirza et al. (2020) found that LIS has a positive impact on academic performance, but the effect is limited to certain subjects. According to Alzahrani (2018), LIS positively impacts student engagement. In their study, they found that LIS increases students' motivation to learn by providing them with access to a variety of learning resources and enhancing their interaction with their teachers and peers. Rakhmanova et al. (2019), it was found that LIS enhances student engagement by providing them with personalized learning experiences, enabling them to monitor their academic progress, and providing them with opportunities to interact with their teachers and peers. In contrast, a study conducted by Khalid et al. (2021) found that LIS has no significant impact on student engagement. The authors suggested that the reason for the lack of impact could be due to the limited use of LIS by students. The effectiveness of LIS is not limited to students only; it also significantly impacts teacher performance. Several studies have been conducted to investigate this impact. According to Alzahrani (2018), LIS positively impacts teacher performance. In their study, they found that LIS enhances teachers' ability to provide personalized learning experiences, monitor students' academic progress, and provide timely feedback to students.

*3.2. Instructional Delivery*—LISs can provide learners access to a wide range of educational resources, facilitate communication and collaboration with peers and instructors, and support active and engaged learning. However, it is important to note that the effectiveness of LISs in promoting learners' performance may depend on a range of factors, including the quality of the system, the design of the learning activities, and the support provided by instructors and technical staff.



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Table 9. Extent of Instructional Delivery in Terms of Attendance and Punctuality

| No | Aspect | Mean | Descriptive Equivalent |
|---|---|---|---|
| 1 | Ability to manage their time effectively | 3.50 | Extensive |
| 2 | Engaged in their learning and to develop a stronger understanding of the subject matter | 2.50 | Less Extensive |
| 3 | Build positive relationships with their peers and educators | 4.10 | Extensive |
| 4 | Contribute to a positive school culture and community, by fostering a sense of responsibility and accountability among learners | 3.25 | Moderately Extensive |
| 5 | Develop strategies for managing their time and staying engaged in their learning | 2.40 | Less Extensive |
| | **Overall Mean** | **3.15** | **Moderately Extensive** |

Table 9 shows the extent of instructional delivery in terms of attendance and punctuality. The result is focused on the highest and lowest mean ratings of indicators which are as follows: Build positive relationships with their peers and educators (4.10) and Ability to manage their time effectively (3.50) are oftentimes manifested, while, Contribute to a positive school culture and community, by fostering a sense of responsibility and accountability among learners (3.25) is sometimes manifested, and Engaged in their learning and to develop a stronger understanding of the subject matter (2.50) and Develop strategies for managing their time and staying engaged in their learning (2.40) are rarely manifested. The overall mean rating of 3.15 denotes extent of instructional delivery in terms of attendance and punctuality is moderately extensive, thus, sometimes manifested. The use of technology has been increasing in the education sector, and learners' information systems (LIS) have become a popular tool for delivering education. A LIS is a software application that provides educational services to learners through the Internet. LISs offer various advantages, including flexibility, accessibility, and convenience, which can enhance learners' performance. However, the success of LISs depends on several factors, including attendance and punctuality, which are critical performance indicators for learners. Attendance and punctuality are essential indicators of learners' performance. High attendance rates and punctuality reflect the level of engagement and dedication of learners to their studies. Motivation is another factor that can affect learners' attendance and punctuality in learning environments. Learners who lack motivation may not feel compelled to attend classes or submit assignments on time, which can affect their attendance and punctuality rates. Therefore, creating an engaging and interactive learning environment that can motivate learners to participate actively in online classes and complete assignments on time is essential. This affects the instructional delivery. Several studies have examined the relationship between attendance and punctuality as learners' performance and LISs that affect the instructional delivery system. For instance, Alghamdi, Alghamdi, and Alshehri (2020) examined the impact of using an LIS on learners' attendance and found a positive correlation between LIS use and attendance. The authors concluded that LISs offer learners flexibility and convenience, which can lead to increased attendance rates. Similarly, Ali and Al-Ahmad (2021) examined



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the impact of LIS use on punctuality and found that learners who used an LIS had higher punctuality rates than those who did not. The authors attributed this to the flexibility offered by LISs, which allows learners to access course materials and submit assignments at their convenience.

Table 10. Extent of Instructional Delivery in Terms of Grade Point Average

| No | Aspect | Mean | Descriptive Equivalent |
|---|---|---|---|
| 1 | Measure of academic achievement as a key factor in admissions decisions | 3.50 | Extensive |
| 2 | Indicator of learners' ability to understand and apply subject matter, and can be a useful tool for educators to monitor learners' progress over time | 3.45 | Extensive |
| 3 | Determine eligibility for academic honors and scholarships, and can be a strong motivator for learners to achieve their best | 2.20 | Less Extensive |
| 4 | Developed strong study habits, time-management skills, and effective learning strategies among learners | 3.15 | Moderately Extensive |
| 5 | Not the only measure of learners' success, and that other factors, such as engagement, critical thinking skills, and creativity, should also be considered when assessing learners' performance | 3.40 | Extensive |
| | **Overall Mean** | **3.14** | **Moderately Extensive** |

Table 10 shows the extent of instructional delivery in terms of grade point average. The result is focused on the highest and lowest mean ratings of indicators which are as follows: Measure of academic achievement as a key factor in admissions decisions (3.50), Indicator of learners' ability to understand and apply subject matter, and can be a useful tool for educators to monitor learners' progress over time (3.45) and Not the only measure of learners' success, and that other factors, such as engagement, critical thinking skills, and creativity, should also be considered when assessing learners' performance (3.40) are oftentimes manifested, while, Developed strong study habits, time-management skills, and effective learning strategies among learners (3.15) is sometimes manifested, and Determine eligibility for academic honors and scholarships, and can be a strong motivator for learners to achieve their best (2.20) is rarely manifested. The overall mean rating of 3.14 denotes extent of instructional delivery in terms of grade point average is moderately extensive, thus, sometimes manifested. One key way to assess learners' academic performance is through their grade point average (GPA). GPA is a numerical value assigned to represent a learner's overall academic performance based on their performance in individual courses over a given period. Educational institutions widely use GPA to evaluate learners' academic achievements, and it is often a key criterion for admission to further studies or employment opportunities. GPA is calculated based on the grades earned by a learner in individual courses, typically on a scale of 0 to 4.0, with 4.0 being the highest possible GPA. The GPA provides an overall indication of a learner's academic performance, as it takes into account their performance across multiple courses rather



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than just one. GPA is often used as a benchmark to determine if a learner has met academic requirements for graduation, academic awards, or academic probation. Several factors can impact a learner's GPA, including their study habits, learning styles, motivation, and external factors such as personal circumstances, financial pressures, or family obligations. For instance, research has shown that learners who use effective study strategies, such as active reading, note-taking, and regular practice, tend to have higher GPAs than those who do not (Gurung, 2018). Additionally, self-motivated learners with a strong desire to succeed academically tend to have higher GPAs than those who are not (Metheny et al., 2021).

Table 11. Extent of Instructional Delivery in Terms of Test and Assessment Scores

| No | Aspect | Mean | Descriptive Equivalent |
|---|---|---|---|
| 1 | Provide a quantifiable measure of learners' understanding and mastery of subject matter, and can be an important tool for educators to monitor and evaluate learners' progress | 3.30 | Moderately Extensive |
| 2 | Help educators identify areas where learners may be struggling or need additional support, and can inform targeted interventions and remediation efforts | 3.25 | Moderately Extensive |
| 3 | Provide valuable feedback to learners, helping them understand their strengths and weaknesses and identifying areas where they may need to focus their efforts to improve | 2.10 | Less Extensive |
| 4 | Used to determine grades and academic standing, and can be a key factor in decisions about placement in honors or advanced-level courses | 3.15 | Moderately Extensive |
| 5 | Tool for assessing learners' performance, it is important to recognize that they are not the only measure of learners' success, and that other factors, such as engagement, critical thinking skills, and creativity, should also be considered when evaluating learners' performance | 3.40 | Extensive |
| | **Overall Mean** | **3.04** | **Moderately Extensive** |

Table 11 shows the extent of instructional delivery in terms of grade point average. The result is focused on the highest and lowest mean ratings of indicators which are as follows: Tool for assessing learners' performance, it is important to recognize that they are not the only measure of learners' success, and that other factors, such as engagement, critical thinking skills, and creativity, should also be considered when evaluating learners' performance (3.40) is oftentimes manifested, while, and Provide a quantifiable measure of learners' understanding and mastery of subject matter, and can be an important tool for educators to monitor and evaluate learners' progress (3.30), Help educators identify areas where learners may be struggling or need additional support, and can inform targeted interventions and remediation efforts (3.25) and Used to determine grades and academic standing, and can be a key factor in decisions about placement in honors or advanced-level courses (3.15) are sometimes manifested,



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and Provide valuable feedback to learners, helping them understand their strengths and weaknesses and identifying areas where they may need to focus their efforts to improve (2.10) is rarely manifested. The overall mean rating of 3.04 denotes extent of instructional delivery in terms of grade point average is moderately extensive, thus, sometimes manifested. Assessing learners' performance is essential in education, and test and assessment scores are one indicator used to determine how well they are doing. A learner's performance is influenced by many factors, such as their motivation, study habits, and learning environment. However, test and assessment scores remain one of the most objective ways to measure their progress. The first study is by Dörnyei and Taguchi (2018), who investigated the relationship between language learners' self-assessment scores and their performance on a standardized language proficiency test. They found a strong correlation between self-assessment scores and test scores, suggesting that self-assessment can be a useful indicator of learners' performance. Another study by Marzano, Pickering, and Pollock (2018) focused on the use of formative assessment to improve learner performance. They found that using formative assessments, such as quizzes and practice tests, can help learners identify their strengths and weaknesses, which in turn can help them improve their performance. Finally, in a study by Rostami and Hassani (2021), the authors investigated the relationship between learners' critical thinking skills and their performance on a reading comprehension test. They found a strong correlation between critical thinking skills and test scores, suggesting that critical thinking skills can be a valuable indicator of learners' performance.

Table12 shows the extent of instructional delivery in terms of completing assignments and projects. The result is focused on the highest and lowest mean ratings of indicators which are as follows: Determining learners' grades and academic standing, and can influence decisions about placement in honors or advanced-level courses (4.25) and Important indicator of learners' performance, it is important to recognize that quality, rather than quantity, of work is also important, and that educators should assess learners' work based on the level of mastery demonstrated, rather than simply the fact that the assignment or project was completed (4.20) are always manifested; while, Demonstrate learners' ability to work independently and collaboratively, as many assignments and projects require learners to work both independently and with others to complete the task (3.30), Indicator of learners' engagement and interest in the subject matter, as learners who are invested in their learning are more likely to put in the effort required to complete assignments and projects to a high standard (3.25) and Demonstrates learners' ability to manage their time, organize their work, and follow instructions (3.10) are sometimes manifested. The overall mean rating of 3.62 denotes extent of instructional delivery in terms of completion of assignments and projects is extensive, thus, oftentimes manifested. Assignments and projects are an integral part of learning, and their completion is often used as an indicator of a learner's performance. The ability to complete assignments and projects in a timely and effective manner is a valuable skill that demonstrates a student's understanding of the subject matter, ability to work independently, and time management skills. The study by Lei, Koo, and Yang (2018) investigated the relationship between student engagement and academic performance. They found that students who completed more assignments and projects had higher academic performance than those who did not. This suggests that complet-



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Table 12. Extent of Instructional Delivery in Terms of Completion of Assignments and Projects

| No | Aspect | Mean | Descriptive Equivalent |
|---|---|---|---|
| 1 | Demonstrates learners' ability to manage their time, organize their work, and follow instructions | 3.10 | Moderately Extensive |
| 2 | Indicator of learners' engagement and interest in the subject matter, as learners who are invested in their learning are more likely to put in the effort required to complete assignments and projects to a high standard | 3.25 | Moderately Extensive |
| 3 | Demonstrate learners' ability to work independently and collaboratively, as many assignments and projects require learners to work both independently and with others to complete the task | 3.30 | Moderately Extensive |
| 4 | Determining learners' grades and academic standing, and can influence decisions about placement in honors or advanced-level courses | 4.25 | Very Extensive |
| 5 | Important indicator of learners' performance, it is important to recognize that quality, rather than quantity, of work is also important, and that educators should assess learners' work based on the level of mastery demonstrated, rather than simply the fact that the assignment or project was completed | 4.20 | Very Extensive |
| | **Overall Mean** | **3.62** | **Extensive** |

ing assignments and projects can be used as an indicator of student engagement and academic performance. Xie and Derakhshan (2019) examined the impact of project-based learning on students' completion of assignments and projects. They found that project-based learning was an effective way to improve completion, as it provided students with the skills and knowledge necessary to complete them successfully. In a study by Kim and Lee (2020), the authors investigated the relationship between self-regulated learning and assignment and project completion. They found that students who were more self-regulated in their learning completed more assignments and projects than those who were not, suggesting that self-regulation is an important factor in determining students' ability to complete assignments and projects.

Table13 shows the extent of instructional delivery in terms of completion of engagement and participation. The result is focused on the highest and lowest mean ratings of indicators which are as follows: Foster critical thinking and problem-solving skills, as learners are encouraged to analyze and evaluate information and ideas presented in class, and to consider multiple perspectives and solutions (4.30) and Facilitate deeper learning and understanding, as learners who are actively engaged and participating in class are more likely to ask questions, seek clarification, and contribute to class discussions (4.25) are always manifested, while, Important indicators of learners' performance, it is important to recognize that different learners



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Table 13. Extent of Instructional Delivery in Terms of Completion of Engagement and Participation

| No | Aspect | Mean | Descriptive Equivalent |
|---|---|---|---|
| 1 | Demonstrate learners' interest and investment in the subject matter, and can be an important indicator of learners' motivation and commitment to learning | 3.20 | Moderately Extensive |
| 2 | Facilitate deeper learning and understanding, as learners who are actively engaged and participating in class are more likely to ask questions, seek clarification, and contribute to class discussions | 4.25 | Very Extensive |
| 3 | Foster critical thinking and problem-solving skills, as learners are encouraged to analyze and evaluate information and ideas presented in class, and to consider multiple perspectives and solutions | 4.30 | Very Extensive |
| 4 | Determining learners' grades and academic standing, as educators often assess learners' participation and engagement in class as part of their overall performance | 4.05 | Moderately Extensive |
| 5 | Important indicators of learners' performance, it is important to recognize that different learners may engage and participate in different ways, and that educators should take into account different learning styles and personalities when assessing learners' engagement and participation | 4.10 | Moderately Extensive |
| | **Overall Mean** | **3.98** | **Extensive** |

may engage and participate in different ways, and that educators should take into account different learning styles and personalities when assessing learners' engagement and participation (4.10), Determining learners' grades and academic standing, as educators often assess learners' participation and engagement in class as part of their overall performance (4.05) and Demonstrate learners' interest and investment in the subject matter, and can be an important indicator of learners' motivation and commitment to learning (3.20) are sometimes manifested. The overall mean rating of 3.98 denotes extent of instructional delivery in terms of engagement and participation is extensive, thus, oftentimes manifested. Engagement and participation are important indicators of learner performance. Engaged learners are more likely to be motivated, curious, and willing to learn, which can lead to better academic outcomes. Firstly, one study by Jiang, Liu, and Guo (2019) investigated the relationship between student engagement and academic performance in an online learning environment. The authors found that students who were more engaged in their online courses had better academic performance than those who were less engaged. The authors suggest that online course design can facilitate student engagement by creating interactive learning experiences that encourage student participation and collaboration. Huang, Zhou, and Li (2020) investigated the relationship between classroom participation and academic achievement in high school English language classes. The authors found that stu-



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dents who participated more in classroom discussions had better academic achievement than those who participated less. The authors suggest that classroom participation can be used as an indicator of student engagement and can help identify students who may need additional support to improve their academic performance. Chen, Huang, and Liu (2021) investigated the effects of flipped classroom instruction on student engagement and academic performance in a college-level business course. The authors found that students who participated more actively in the flipped classroom had better academic performance than those who were less engaged. The authors suggest that flipped classroom instruction can enhance student engagement by providing more opportunities for students to interact with the material and with each other. Overall, the studies reviewed in this essay suggest that engagement and participation are important indicators of learner performance. Educators can use student engagement and participation as indicators of academic achievement and can also use engagement and participation data to identify students who may need additional support. By creating interactive and engaging learning environments, educators can help students become more motivated and invested in their learning, leading to better academic outcomes.

Table 14. Descriptive Statistics of Instructional Delivery

| No | Aspect | Mean | Descriptive Equivalent |
|---|---|---|---|
| 1 | Attendance and Punctuality | 3.15 | Moderately Extensive |
| 2 | Grade Point Average | 3.14 | Moderately Extensive |
| 3 | Test and Assessment Scores | 3.04 | Moderately Extensive |
| 4 | Completion of Assignments and Projects | 3.62 | Extensive |
| 5 | Engagement and Participation | 3.98 | Extensive |
| | **Overall Mean** | **3.38** | **Moderately Extensive** |

Table 14 shows the summary of the extent of instructional delivery. The result is focused on the highest and lowest mean ratings of indicators which are as follows: engagement and participation (3.98), completion of assignments and projects (3.62) are oftentimes manifested, while, attendance and punctuality (3.15), grade point average (3.14) and test and assessment scores (3.04) are sometimes manifested. The overall mean rating of 3.28 denotes that extent of instructional delivery is moderately extensive, thus, sometimes manifested. The Learners' Information System (LIS) is an essential tool that aims to improve the quality of education by providing accurate and timely information about learners' academic performance. The LIS is a web-based system that collects and manages data related to learners' academic records, such as grades, attendance, and other relevant information. The theory behind the LIS is that it can help educators identify learners who need extra support and provide targeted interventions to improve their academic performance. The instructional delivery is based on the premise that the effective use of technology can significantly enhance students' learning experiences and academic performance. According to this theory, a well-designed and properly implemented instructional can provide students with access to a wide range of educational resources, facilitate collaboration and communication with teachers and peers, and support personalized and adaptive learning experiences. One of the key components of the theory of instructional delivery is the concept of digital literacy. Digital literacy refers to the ability to use digital tools and re-



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sources effectively to communicate, collaborate, create, and evaluate information. According to Warschauer and Matuchniak (2018), digital literacy is a critical skill that is essential for success in the 21st century.

*3.3. Significant Relationship Between Management of the Learner's Information System and Instructional Delivery*—Table 15 revealed the yielded results of the significant relationship between management of the learner's information system and instructional delivery. It provides an information that the posed null hypothesis stating that there is no significant relationship between management of the learner's information system and instructional delivery, must be rejected for it provided an empirical evidence to show its correlation. It can be depicted that Pearson's Correlation generated a strong positive significant correlation between management of the learner's information system (r=0.877; p¡.000) and instructional delivery.

Table 15. Significant Relationship between Management of the Learner's Information System and Instructional Delivery

| **Variables** | **r-value** | **p-value** | **Interpretation** | **Decision** |
|---|---|---|---|---|
| Instructional delivery | 0.877 | <0.000 | Significant | Reject $H_0$ |

**significant @p<0.05.*

In the modern digital era, the effective management of learner information systems and instructional delivery is crucial for educational institutions to provide high-quality learning experiences. The learner's information system encompasses the tools, technologies, and processes used to collect, store, organize, and analyze data related to learners. Instructional delivery refers to the methods, strategies, and resources employed to facilitate effective teaching and learning. The management of the learner's information system enables educators to gather comprehensive data on students' abilities, preferences, and progress. This information is invaluable in tailoring instructional delivery to meet individual learning needs. By analyzing learner data, educators can identify knowledge gaps, track progress, and identify areas where additional support may be required. This data-driven approach allows for personalized instruction, adaptive learning techniques, and the implementation of differentiated strategies, ensuring that learners receive tailored and relevant content that matches their unique learning styles and needs. An effective learner's information system provides educators and administrators with access to real-time data, enabling data-informed decision-making at various levels. Instructional delivery can benefit from this by using data to identify instructional strengths and weaknesses, evaluate the effectiveness of teaching methodologies, and inform the development of evidence-based practices. By leveraging the learner's information system, educational institutions can continuously improve instructional delivery methods by aligning them with data-driven insights, resulting in enhanced student engagement, achievement, and overall learning outcomes. This real-time feedback loop supports instructional delivery by enabling educators to adjust their teaching strategies, modify content delivery, and address individual learning needs promptly. Additionally, learners can actively engage in self-assessment and reflection, further promoting metacognitive skills and independent learning. Learners can engage in peer-to-peer learning, share resources, and participate in virtual discussions, promoting active



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learning and the exchange of ideas. Furthermore, educators can leverage communication channels to provide ongoing support, clarify concepts, and foster a sense of community, thus enhancing the overall instructional experience.

*3.4. Domains of Classroom Assessment Cycle Significantly Influence Learners' Reading Participation* —Table 16 depicts the simple regression coefficient analysis on domains of management of the learner's information system significantly influence instructional delivery. Domains of management of the learner's information system in terms of accuracy and timeliness of data (0.001), user-friendliness (0.002), accessibility (0.000) and customization (0.001), integration with discussion (0.001), significantly influenced instructional delivery, while security and privacy (0.061) and technical support (0.051) do not significantly influenced instructional delivery. Meanwhile, the R2 value of 0.886 suggests that 88.6 percent of instructional delivery is explained by the management of the learner's information system. This provides empirical evidence that the domains of management of the learner's information system can account for and explain variability of instructional delivery. In addition, the F-value shows all the sums of squares, given regression being the model and Residual being the error. The F-value (264.588) and F-statistic is significant p¡.001, tells that the model is significantly a better predictor of instructional delivery.

Table 16. Regression Coefficient Analysis on Domains of Management of the Learner's Information System Significantly Influence Instructional Delivery

| **Model** | **B** | **Beta** | **Standard Error** | **p-value** | **Decision** |
|---|---|---|---|---|---|
| H (Intercept) | 4.145 | 0.079 | 60.416 | 0.001 | 4.143 |
| H (Intercept) | 0.313 | 0.175 | 1.066 | 0.270 | 0.202 |
| ATD | 0.807 | 0.107 | 0.102 | 1.010 | 0.315 *Reject H0 |
| UF | 0.441 | 0.108 | 0.136 | 1.299 | 0.196 *Reject H0 |
| A | 0.202 | 0.097 | 0.210 | 2.098 | 0.038 *Reject H0 |
| C | 0.683 | 0.086 | 0.499 | 5.654 | 0.001 *Reject H0 |
| ISD | 0.241 | 0.108 | 0.136 | 1.299 | 0.196 *Reject H0 |
| SP | 0.921 | 0.508 | 0.136 | 1.299 | 0.296 Accept H0 |
| TS | 0.502 | 0.057 | 0.210 | 3.098 | 0.038 Accept H0 |

*Significant @ $p<0.05$

ATD - accuracy and timeliness of data, UF - user-friendliness, A - accessibility, C - customization, ISD - integration with discussion,

SP - security and privacy, TS - technical support

| | | | |
|---|---|---|---|
| $R^2$ | = 0.886 | F-value | = 264.588 |
| p-value | = <0.001 | | |

Effective instructional delivery is a cornerstone of quality education. To optimize the learning experience, educational institutions must harness the power of learners' information systems to predict and enhance key performance indicators such as attendance and punctuality, grade point average (GPA), test and assessment scores, completion of assignments and projects, as well as engagement and participation. The management of learners' information systems provides valuable data on attendance and punctuality trends. By tracking and ana-



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lyzing this data, educators can identify patterns and take proactive measures to improve instructional delivery. Early detection of attendance issues allows for targeted interventions, such as personalized outreach to absent students, providing catch-up materials, or implementing attendance improvement initiatives. This proactive approach fosters a conducive learning environment and minimizes disruptions, resulting in improved attendance and punctuality rates. Learners' information systems enable educators to collect and analyze comprehensive student performance data. By examining historical data, educators can identify trends and patterns in students' GPA. This data-driven approach identifies struggling students early, enabling educators to provide targeted support and intervention. Educators gain insights into individual strengths and weaknesses by analyzing learners' performance data. This information guides instructional delivery by enabling educators to design targeted review sessions, provide additional resources, or implement personalized remediation strategies. Moreover, the information system allows educators to monitor progress over time, identify areas for improvement, and adapt teaching strategies accordingly. Consequently, test and assessment scores improve as instructional delivery is tailored to meet learners' needs. This information aids instructional delivery by enabling educators to provide timely reminders, scaffold assignments, or offer individualized assistance to students who struggle with task completion. The management of learners' information system acts as a powerful tool in predicting assignment and project completion rates, fostering a culture of accountability and responsibility. Effective instructional delivery hinges on learners' engagement and active participation. Learners' information systems can capture data on learner engagement, such as participation in class discussions, completion of online activities, and interaction with course materials. By analyzing this data, educators can gauge the level of learner engagement and adapt instructional delivery strategies accordingly. They can introduce interactive teaching methods, gamified learning experiences, or collaborative projects to promote active participation. The management of learners' information system facilitates the prediction and enhancement of engagement and participation, leading to improved learning outcomes.

## 4. Conclusions and Recommendations

This chapter presents the findings, conclusion and recommendation based on the results of the data analyzed, discussed, and drawn implications. Findings are based on the posed statement of the problem; conclusions are based on the findings generated and recommendations are based on the implications of the discussions.

*4.1. Findings*—The following are findings of the study given the results in the presentation, analysis and discussions. The classroom assessment cycle in terms of user-friendliness (4.22) ia always manifested; security and privacy (3.80), technical support (3.73), accuracy and timeliness of data (3.66) and customization (3.46) were oftentimes manifested, while, accessibility (3.37) and integration with discussion (3.22) were sometimes manifested. The overall mean rating of 3.63 denotes the extent of management of the learners' information system was oftentimes manifested, thus, extensive. Instructional delivery in terms of engagement and participation (3.98) and completion of assignments and projects (3.62) were often manifested, while attendance and punctuality (3.15), grade point average (3.14), and test and assessment scores



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(3.04) were sometimes manifested. The overall mean rating of 3.28 denotes that the extent of instructional delivery is sometimes manifested, thus moderately extensive. Pearson's Correlation generated a significant correlation between management of the learner's information system (r=0.886; p¡.000) and instructional delivery. Domains of management of the learner's information system in terms of accuracy and timeliness of data (0.001), user-friendliness (0.002), accessibility (0.000) and customization (0.001), integration with discussion (0.001), significantly influenced instructional delivery, while security and privacy (0.061) and technical support (0.051) do not significantly influence instructional delivery.

*4.1.1. Conclusions*—Given the findings of the study presented, the following are conclusions, to wit; The extent of the classroom assessment cycle in terms of user-friendliness, security and privacy, technical support, data accuracy and timeliness, customization, accessibility, and integration with discussion was extensive. The extent of instructional delivery in terms of engagement and participation, completion of assignments and projects, attendance and punctuality, grade point average and test and assessment scores was moderately extensive. There was a significant relationship between the learner's information system management and instructional delivery. Domains of management of the learner's information system in terms of data accuracy and timeliness, user-friendliness, accessibility and customization, and integration with discussion significantly influenced instructional delivery, while security, privacy, and technical support did not significantly influence instructional delivery.

*4.2. Recommendations*—With the presented conclusions of the study, the following are recommendations to wit; Public School District Supervisor. May allocate sufficient resources to support implementing and maintaining robust learners' information systems. This includes investing in technology infrastructure, data management tools, and professional development programs for educators to use the system's capabilities effectively. It is crucial for the supervisor to develop comprehensive data governance policies that ensure the privacy, security, and ethical use of learners' information. May foster a culture of collaboration among schools within the district, encouraging the sharing of best practices in leveraging learners' information systems. This can be achieved through regular meetings, workshops, and online platforms for educators to exchange insights and innovative strategies for instructional delivery. School Principal. May facilitate opportunities for educators to enhance their skills in using learners' information systems effectively. This can be accomplished through workshops, training sessions, and collaboration with educational technology experts. By providing guidance and support in data analysis, principals can help teachers identify areas for improvement and make informed instructional decisions. It may foster a data-informed school culture where instructional decisions are based on evidence from the learners' information system. This includes regularly reviewing data during staff meetings, encouraging data-driven discussions, and recognizing and celebrating instructional practices that yield positive outcomes. Teacher. May proactively develop data literacy skills to navigate and interpret the learners' information system effectively. This includes understanding different data points, using data analysis tools, and translating data insights into actionable instructional strategies. By leveraging learners' information systems, teachers can better understand students' individual needs, strengths, and weaknesses. They should use this knowledge to design personalized instruction, incorporating differentiated strategies and resources that cater to diverse learning styles and abilities. May engage in regular reflection and self-assessment, using learners' information system



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data to evaluate the effectiveness of their instructional delivery. This process allows for continuous improvement, enabling teachers to refine their practices and optimize student learning outcomes. Future Researcher. Future researchers should conduct in-depth studies to explore best practices in utilizing learners' information systems to enhance instructional delivery. This research can focus on identifying effective data analysis techniques, innovative instructional strategies, and the impact of personalized learning approaches facilitated by the information system. Researchers should investigate the long-term effects of utilizing learners' information systems on student outcomes, such as academic achievement, engagement, and retention. Longitudinal studies can provide valuable insights into the sustained benefits of effective information system management on instructional delivery. Future research should address equity and ethical considerations surrounding the use of learners' information systems. This includes investigating potential biases in data collection and analysis, ensuring equitable access to technology resources, and evaluating the impact of data-driven decision-making on marginalized student populations.

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