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TOWARDS A DIGITAL SCHOOL LEADERSHIP FRAMEWORK FOR SCHOOLHEAD AND THE TEACHER DIGITAL COMPETENCE: INPUT FOR SCHOOL LEADER DIGITAL LEARNING GUIDE

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Abstract:

Digital school leadership of schoolhead and the teacher digital competence have gained prominence in enhancing quality education in the 21st Century. This descriptive-evaluative research study focused on extent of practice of leadership skills in the Digital Era of the School leaders, teacher's teacher digital competence in Division of San Jose del Monte Bulacan and Division of Rizal., where data were collected from teachers, and schoolheads from secondary schools. Findings indicated a high rating for level of principal's digital leadership in terms of visionary leadership, teaching and learning, professional practice, support, management, and operations, assessment and evaluation, social legal and ethical issues as assessed by School Administrators and teachers themselves. More so, teachers' level of digital competence in terms of technology operations and concepts; planning and designing learning environments and experiences; assessment and evaluation; productivity and professional practice; social, ethical, legal, and human issues; and planning of teaching according to individual differences and special needs was observed high level. Results revealed that there is significant relationship between the principal's digital leadership and teachers' digital competence. It may probably be attributed to the fact that principal's digital leadership, as far as they are concerned, affects to and its teachers' digital competence. Barriers to effective digital school leadership can be addressed through school leader digital learning guide to enhance their confidence and competencies with technology of schoolheads and teachers.

Keywords: digital school leadership, school leader digital learning guide, teacher digital Competence

Introduction

One of the most essential drivers of school progress is the school leaders. At the school level, the school leader is the primary decision maker, problem solver, and change agent. The creation of school environments that allow continual improvement is one of the essential jobs connected with competent school leader. Working with teachers to widen and deepen their professional abilities, effectively managing resources, and obtaining external supports and materials that enhance effective teaching and learning are all part of this. School leaders can contribute to build more innovative and effective educational environments when their actions are tied to district reform efforts.

But, the current situation, as school after school shuts down in the face of the Covid-19 crisis, digital learning has risen from a nice-to-have extracurricular facility to become the lifeline for education. But the opportunities that digital technologies offer go well beyond a stop-gap solution during the crisis.

Despite the COVID19 pandemic, the Department of Education (DepEd) recognizes the need to give students with uninterrupted learning opportunities, and has issued declarations on the need for flexible/alternative delivery modalities for implementing their programs.

As such, schools growing increasingly reliant on technology, school leaders must leverage the power of digital technologies to establish transparent, relevant, meaningful, engaging, and inspirational school cultures.

School leaders must begin to modify the way they lead in order to set the stage for increased achievement and a stronger sense of community pride in the work that is being done in the schools. To do so, school leaders must first comprehend the sources of the fear and misunderstandings that frequently accompany the use of technology such as social media and mobile devices.

School Leaders can begin to build a vision for the successful use of technology to improve several aspects of leadership once the fears and misconceptions have been addressed. The problem for school administrators is figuring out why, how, and where to start. Digital leadership is not about flashy tools, but a strategic mindset that leverages available resources to improve what we do while anticipating the changes needed to cultivate a school culture focused on engagement and achievement. It is a new construct of leadership that grows out of the leader's symbiotic relationship with technology (Sheninger, 2021).

The end result will be sustainable change in programs, instruction, behaviors, and leadership practices with technology as a pivotal element. Digital leadership requires a shift in leadership style from one of mandates, directives, and buy-in to one grounded in empowerment, support, and embracement as keys to sustainable change.

School leaders have the ability to move educational use of digital technology forward. As digital natives, students have a unique opportunity to use technology daily.

Looking forward, in this flexible/alternative delivery modalities requires school leaders to take proactive steps in applying technology while preparing for technology-related knowledge and information.

Digital leaders are required to take advantage of technology to transform, impact learning, and create a shared vision for how technology can meet the needs of all learners (National Education Technology Plan Update, 2017). It is thus critical that school leaders envisage and facilitate the use of technology in this digital world ubiquitous to students who are now digital natives. However, according to a report by the World Economic Forum (2019), poor leadership could be the biggest barrier to a successful Fourth Industrial Revolution strategy.

More so, in the context of Philippine Education, school leaders, show that many school leaders have low and medium levels of knowledge and skills in technology and digital leadership (Tamaro, 2018).

From this, school leaders, who are the principals and teachers, are now transforming themselves on what the Industrial Revolution 4.0 is pushing with to elevate the current education system in which their digital leadership is pointed-out on how it will further enhance the technological proficiency of their teachers. Hence, it is, therefore, the intention of the study to assess and describe the extent of practice of leadership skills in the Digital Era of the School leaders and the challenges and future directions for effective management in selected school in Division of San Jose del Monte Bulacan and Division of Rizal. For the further enrichment of this study, the researchers sought to proposed school leader digital learning guide.

STATEMENT OF THE PROBLEM

The study aims to determine the extent of practice of leadership skills in the Digital Era of the School leaders and teachers' digital competence in Division of San Jose del Monte Bulacan and Division of Rizal. Specifically, it seeks answers to the following questions:

1 How may the school leaders' level of digital leadership be described as assessed by School Administrators and teachers themselves in terms of:
   - 1.1 Visionary Leadership
   - 1.2 teaching and Learning
   - 1.3 professional practice
   - 1.4 Support, management, and operations
   - 1.5 Assessment and evaluation
   - 1.6 Social legal and ethical issues

2 Is there significant difference in the assessment of the two groups of respondents on the level of principal's digital leadership?

3 How may the level of teachers' digital competence be described as assessed by school administrators and teachers themselves in terms of?
   - 3.1 technology operations and concepts;
   - 3.2 planning and designing learning environments and experiences;
   - 3.3 assessment and evaluation;
   - 3.4 productivity and professional practice;
   - 3.5 social, ethical, legal, and human issues; and
   - 3.6 planning of teaching according to individual differences and special needs?

4 Is there significant difference in the assessment of the two groups of respondents on the level of teachers' digital competence?

5 Is there significant relationship between the principal's digital leadership exert on teachers' digital competence?

6 What challenges do school leaders encountered in the Digital Era of leadership for effective management?

7 How may the findings of this study to be utilized for the proposed school leader digital learning guide?

Theoretical Framework

With digital and technology continuous influence on learning, knowledge distribution and learning patterns have changed tremendously. Understanding the learning process and patterns in

a digital world is important for school leaders to successfully possess digital leadership which underpinned in the connectivism theory.

The realization of learning patterns and environmental shifts was especially essential for educational leaders to lead educational reform such as flexible distance learning. Informal learning played an essential part in teachers' learning and resulted in diverse ideas and resources. Leading a team with diverse viewpoints can be quite challenging for principals.

In the current education paradigm shifts and stated that organizations should provide a connected environment that enabled learners to explore, evaluate, and share knowledge and information as well as construct individual knowledge structure instead of offering consumed or digested knowledge. Creating continual leadership connection was identified as an approach of solving the issue of diversity. The intention of continuous or life-long learning emphasized by connectivism coincided with the innovative objectives of digital leadership.

From this school leaders required in a digital world should possess the capability of leading digital transformation, creating digital learning culture, supporting ongoing professional growth, enhancing continuous organization improvement, and assisting digital citizenship. The dynamic learning environment highlighted by connectivism was a good approach of supporting ongoing professional growth and digital learning. That essential role of connectivism in educational leadership by examining school leaders' experiences and perceptions of systemic change. As implied that continuous learning or lifelong learning was essential for school leaders to maintain the innovative changes. Moreover, teachers needed in time, content-specific, and ongoing support. In other words, school leaders should provide an effective learning environment that should be learner-centered, knowledge - centered, assessment-centered, and community-centered. When providing professional development for teachers, school leaders should consider all learning patterns, including formal, informal, and independent learning. Formal learning, which most people were familiar with, was defined as organizational learning such as district training. Informal learning, described as peers' learning (e.g., interaction and learning with colleagues). Independent learning was explained as individual learning activities.

Literature of connectivism learning theory showed that connected, networked, and dynamic learning environments were imperative to enhance and especially expand meaningful learning through communication and collaboration (Zong, 2016). Communication and collaboration were important elements of the connected, networked, and dynamic learning environment. Learning was a dynamic process and would not stop at communication and collaboration. Providing sustainable and on-going support for teachers should be included and considered in digital leadership. For instance, digital leadership was one of the concepts that described and explained the leadership role shift. The effective integration and utilization of technology in schools required support from principals' digital leadership. Affirmatively, that principals' digital leadership not only included getting themselves familiar with technology, but also involved in creating a shared vision of technology and providing professional learning opportunities for teachers. Addressing the skills of digital leadership, the digital leaders offered appropriate opportunities and policies for technology use and resources and they needed the teachers to provide and encourage students as well as parents to involve technology integration. More so, to offered necessary technological support and identified useful technology resources and applications for teachers' future professional training.

METHODS

Research Design

The descriptive research design was employed since the present study attempts to assess the extent of practice of leadership skills in the Digital Era of the School leaders and its challenges basis proposed enhancement training for school leaders. In addition, the researchers used descriptive-evaluation research to accomplish the purpose of the study. Samosa (2020a) pointed out that descriptive-evaluation research is typically designed to determine the causes or consequences of processes, policies, practices or programs. This investigation approach includes the collection of data to address questions related to the status of the study subject. It seeks to identify the essence of the situation as it occurs at the time of the analysis and to examine the causes of the situation.

Population and Sample of the Study

The researchers utilize the purposive sampling technique which is a form of non-probability sampling in which decisions concerning the individuals to be included in the sample are taken by the researcher, based upon a variety of criteria which may include specialist knowledge of the research issue, or capacity and willingness to participate in the research (Samosa, et al, 2021b). The respondents of this study were the 150 public school teachers which includes one hundred forty (140) teachers from Junior High School and Senior High School, and ten (10) schoolhead were purposively chosen as the respondents of the study who are public school leaders and teachers in Division of San Jose del Monte Bulacan and Division of Rizal and undergo digital training in their respective for the school year 2022-2023.

Research Instruments

The questionnaire was the main tool used in this study in gathering data needed. This questionnaire and in – depth interview protocol is a research instrument consisting of series of items for the purpose of gathering information from the respondents. The researcher used the structured questionnaire which was a researcher made instrument with 4 Likert scale survey which are formulated based on literature and studies.

The indicators used in this study were carefully chosen and improved after several consultations and discussions with the adviser. Important points were chosen that could necessarily represent the essence, substance, and intention of the study. The instruments composed of three (3) parts:

Part I it concerns with the level of principal's digital leadership in terms of visionary leadership, teaching and learning, professional practice, support, management, and operations, assessment and evaluation, social legal and ethical issues which consist of five items questionnaires from each indicator that can be answered through four-point Likert scale, 1 – very low, 2 – Low, 3 – High and 4 – Very High and it will be assess by school leaders and teachers.

Part II explore the teachers' digital proficiency in terms of technology operations and concepts; planning and designing learning environments and experiences; assessment and evaluation; productivity and professional practice; social, ethical, legal, and human issues; and planning of teaching according to individual differences and special needs which consists of five item questionnaires for each indicators that can be answered through four-point Likert scale, 1 – very low, 2 – Low, 3 – High and 4 – Very High it will be assess by school leaders and teachers.

Part III. examining the challenges do school leaders encountered in the Digital Era of leadership for effective management which consist of fifteen item questionnaires that can be answered through four-point Likert scale, 1 – Not encountered, 2 – Encountered, 3 – Highly Encountered and 4– Very Highly Encountered

Data gathering Procedures.

The data from the study were gathered using documentation procedure. This could be made possible by taking into account the details from the questionnaire-checklist in the study. The researchers wrote a letter to the Schools Division Office for the approval to conduct a research study among public school leaders and teachers at the Division of San Jose del Monte Bulacan and Division of Rizal during the School Year 2022-2023.

Upon the approval and endorsement of the subject SDS, the researchers were all set to report to the School Head of the subject school for the actual conduct of the study. The researcher personally administered the floating of questionnaires or send google form and its retrieval. Two groups of respondents were considered and these constitute school leaders and Teachers.

Likewise, the researchers also asked respondents through an interview on additional insights to gather in-depth understanding of particular context or setting as to the level of the respondents' awareness on their competence and performance in relation to the study conducted.

To ensure that the study was conducted in an ethical way, the teacher- respondents and school administrators for this study are aware of the topic. Their identities and answers remain confidential and all devices used in the data gathering procedure are known by the informants. And the researchers will consider the rights of the respondents in reporting the data. The researchers has established the succeeding guidelines to ensure that all the respondents rights are upheld and protected (Samosa, 2021a). The research objectives will be presented to the informants to aid them in a better understanding of the purpose of the study, and the data gathering procedure. Thus, the written permission of the respondents will be needed in agreeing to participate in the study. Therefore, the devices used in collecting the data such as google forms of survey questionnaire will be known by the informant. Hence, the collected data will be made available to the respondents. Whereas rights of the informants will be respected and considered foremost concerning the reporting of the data and lastly respondent's anonymity will lay with the informant.

Statistical Treatment

Data gathered from this study was subjected to the following statistical treatments:

Weighted Mean. The weighted mean was use to assess the school leaders' level of digital leadership (Research Question 1), teacher level of digital proficiency (Research Question 3) and school leaders encountered in the Digital Era of leadership for effective management in (Research question 6).

Pearson – Product Moment Correlation Coefficient. This were use to indicate the significant relationship between the principal's digital leadership exert on teachers' digital proficiency (Research Question 5).

T-test for Independent Sample is a statistical technique that is use to check if the means of two groups are significantly different from each other specifically the significant difference on the assessment of assess two groups of respondents on level of principal's digital leadership in terms of visionary leadership, teaching and learning, professional practice, support, management, and operations, assessment and evaluation, social legal and ethical issues (Research Question 2). More so, the assessment of the two groups of respondents on the level of teachers' digital proficiency in terms of technology operations and concepts; planning and designing learning environments and experiences; assessment and evaluation; productivity and professional practice; social, ethical, legal, and human issues; and planning of teaching according to individual differences and special needs (Research Question 4).

RESULTS AND DISCUSSIONS

This portion discusses the findings obtained from the study on the survey – questionnaires on the digital school leadership framework for schoolhead and the teacher digital competence. Furthermore, it interprets and analyzes data gathered based on survey – questionnaires given to the -respondents. The findings were presented according to the problems stated in statement of the problem.

1. **The School Leaders' Level of Digital Leadership**

   Reflected on the following tables were the evaluation of school administrators and teachers themselves in the school leaders' level of digital leadership in terms of visionary leadership, teaching and learning, professional practice, support, management, and operations, assessment and evaluation, social legal and ethical issues. A summary of the evaluation was also presented for a holistic discussion of the evaluation of school leaders' level of digital leadership.

Table 1. The School Leaders' Level of Digital Leadership as assessed by School Administrators and teachers themselves in term of Visionary Leadership.

Reflected on table 1 was the school leaders' level of digital leadership in terms of visionary leadership with five (5) indicators considered**.**

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VISIONARY LEADERSHIP	School Administrators		Teachers		Overall	
	WM	**VI**	**WM**	**VI**	**WM**	**VI**
1. Facilitate practical integration and utilization of technology	3.10	H	3.25	H	3.18	H
2. Reference data in making leadership decisions.	3.16	H	3.40	H	3.28	H
3. Promote a school culture of innovative technology.	3.43	H	3.57	VH	3.50	VH
4. Encourage communication between students and teachers, and team work to cultivate a vision for technology.	3.23	H	3.65	VH	3.44	H
5. Develop and execute systematic technological programs.	3.34	H	3.75	VH	3.55	VH
Overall	**3.25**	**H**	**3.52**	**VH**	**3.39**	**H**

Legend:

1 = 1.00 - 1.49 = Very low (VL)
2 = 1.50 - 2.49 = Low (L)
3 = 2.50 - 3.49 = High (H)
4 = 3.50 - 4.00 = Very High (VH)

Considering the data presented on the table, it shows that in terms of visionary leadership, the school administrator respondents' assessment on the school leaders' level of digital leadership on the factors and indicators set forth posed a weighted mean of 3.25 and interpreted to be High (H). On the other hand, teachers' assessment posed a weighted mean of 2.52 and

interpreted to be Very High (VH). The overall weighted mean computed was at 3.39 and interpreted to be High (H).

Looking on the indicator 1 "Facilitate practical integration and utilization of technology", the computed weighted mean for school administrator respondents' was 3.10, the value acquired posed a verbal interpretation of High (H). While, the teachers' respondents were obtained a computed weighted mean of 3.25 and interpreted as High (H). The overall gleaned weighted mean was 3.18 and interpreted as High (H).

Likewise, indicator 2 "Reference data in making leadership decisions", the computed weighted mean was 3.16 and 3.40 and both interpreted as High (H). The overall weighted mean acquired was 3.28 posed a verbal interpretation of High (H).

More so, indicator 3 "Promote a school culture of innovative technology." the computed weighted mean was 3.43 for school administrator respondents', which interpreted as High (H). While, teacher respondents obtained a weighted mean of 3.57 and interpreted as Very High (VH). The overall weighted mean acquired was 3.17 posed a verbal interpretation of Agree (A).

Affirmatively, indicator 4 "Encourage communication between students and teachers, and team work to cultivate a vision for technology." The school administrator respondents gleaned the computed weighted mean of 3.23 and the value acquired posed a verbal interpretation of High (H). For the teachers' respondents were obtained a computed weighted mean of 3.65 and interpreted as Very High (VH). The overall weighted mean acquired was 3.44 posed a verbal interpretation of High (H).

Cognizant to, indicator 5 "Develop and execute systematic technological programs." the computed weighted mean for school administrator respondents' was 3.34, the value acquired posed a verbal interpretation of High (H). While, teacher respondents obtained 3.75 and interpreted as Very High (VH). The overall weighted mean of both respondents was 3.55 and interpreted as Very High (VH).

Results show that visionary leadership is indicated as integrated technology vision and technology plan support by all stakeholders. Indicators of digital age learning culture include sufficient devices, technology modeling, and effective technology utilization. School administrators have a responsibility to serve as technology leaders in their schools by creating and implementing a vision and a technology strategy (AlAjmi, 2022). School leaders should create, facilitate, and sustain the dynamic digital age through a learning culture that embraces modern digital platforms and developments (Figueiredo, 2021).

The extent to which digital leaders embrace the digital age learning culture has an inherent impact on whether they are highly successful. It is incumbent upon these leaders to ensure that they are adequately aware of the strategies that constitute the framework of implementing a digital age learning culture within their respective settings or organizations.

Table 2. The School Leaders' Level of Digital Leadership as assessed by School Administrators and teachers themselves in term of Teaching and Learning

Presented on table 2 was the school leaders' level of digital leadership in term of Teaching and Learning with five (5) indicators considered.

TEACHING AND LEARNING	School Administrators		Teachers		Overall	
	WM	VI	WM	VI	WM	VI
1. Improve technological equipment to	3.78	VH	3.89	VH	3.70	VH

support teachers and enhance learning effectiveness.						
2. Support innovation in learning by developing a technological learning environment.	3.88	VH	3.90	VH	3.77	VH
3. Provide a student-centered technological learning environment that can be adapted to the individual differences of students.	3.75	VH	3.83	VH	3.75	VH
4. Support the improvement of teaching through technology and develop problem solving skills.	3.45	VH	3.56	VH	3.56	VH
5. Provide teachers with opportunity to improve their capabilities in technology application.	3.55	VH	3.78	VH	3.72	VH
Overall	**3.68**	**VH**	**3.56**	**VH**	**3.58**	**VH**

Legend:

1 = 1.00 - 1.49 = Very low (VL)
2 = 1.50 - 2.49 = Low (L)
3 = 2.50 - 3.49 = High (H)
4 = 3.50 - 4.00 = Very High (VH)

Reflected on the table, indicator 1 “Improve technological equipment to support teachers and enhance learning effectiveness.” obtained a weighted mean of 3.78 and 3.89 for the school administrator and teacher respondents respectively which both interpreted as Very High (VH). The combined weighted mean was 3.70 and all of which interpreted to be of Very High (VH).

In addition, indicator 2 “Support innovation in learning by developing a technological learning environment.” were 3.88 interpreted to be Very High (VH) among school administrators. While, it was gleaned that 3.90 was the computed weighted mean for teacher respondents and interpreted as Very High (VH). The combined weighted mean was 3.77 and all of which interpreted to be of Very High (VH).

In juxtaposition, indicator 3 “Provide a student-centered technological learning environment that can be adapted to the individual differences of students.” obtained a weighted mean of 3.75 and 3.83 for school administrators and teacher respondents respectively which both interpreted as Very High (VH). The combined weighted mean was 3.75 and all of which interpreted to be of Very High (VH).

Proportionally, indicator 4 “Support the improvement of teaching through technology and develop problem solving skills”, school administrators register a weighted mean of 3.45 which is Very High (VH) In a way, local residents obtained a 3.56 which interpreted as Very High (VH). The combined average score was 3.56 which interpreted as Very High (VH).

Similarly, indicator 5 “Provide teachers with opportunity to improve their capabilities in technology application.” the obtained weighted mean for school administrators was 3.55 and for the teacher respondents was 3.78 interpreted as Very High (VH). The combined average score was 3.72 which interpreted as Very High (VH).

Meanwhile, the overall weighted mean for school administrator respondents was 3.68 while for teacher respondents was 3.56 and interpreted as Very High (VH). The combined average score was 3.58 which interpreted as Very High (VH).

School leaders strive to create a system of continuous improvement regarding digital learning while equipping learners with the necessary skills to develop their own unique competencies (Štrukelj, Zlatanović, Nikolić, & Zabukovšek, 2019). More so, School principals must be in charge to ensure that infrastructure fully supports both learning and teaching integration (Kane, Phillips, Copulsky, & Andrus, 2019).

Beytekin, and Cigdem, (2020). concluded in their study that the majority of administrators are innovative pioneers, that they are more dominant in their innovation, and that they are in harmony with the digital leadership characteristics that emerged with Industry 4.0. Canturk and Aksu (2016), stated that school administrators design and support the frequent and effective use of technology for learning-teaching activities, and that they try to provide technology-equipped learning environments and learning resources that meet the various individual needs of students.

Table 3. The School Leaders' Level of Digital Leadership as assessed by School Administrators and teachers themselves in term of Professional Practice

Presented on table 3 was the school leaders' level of digital leadership in term of professional practice with five (5) indicators considered.

PROFESSIONAL PRACTICE	School Administrators		Teachers		Overall	
	WM	**VI**	**WM**	**VI**	**WM**	**VI**
1. Improve technological equipment to support teachers and enhance learning effectiveness.	3.89	VH	3.90	VH	3.90	VH
2. Support innovation in learning by developing a technological learning environment.	3.92	VH	3.97	VH	3.95	VH
3. Provide a student-centered technological learning environment that can be adapted to the individual differences of students.	3.80	VH	3.88	VH	3.84	VH
4. Support the improvement of teaching through technology and develop problem solving skills.	3.55	VH	3.66	VH	3.61	VH
5. Provide teachers with opportunity to improve their capabilities in technology application.	3.81	VH	3.83	VH	3.82	VH
Overall	**3.79**	**VH**	**3.85**	**VH**	**3.82**	**VH**

Legend:

1 = 1.00 - 1.49 = Very low (VL)
2 = 1.50 - 2.49 = Low (L)
3 = 2.50 - 3.49 = High (H)
4 = 3.50 - 4.00 = Very High (VH)

Based on the data gathered, indicator 1 "Improve technological equipment to support teachers and enhance learning effectiveness." school administrators register a weighted mean of 3.89 which is Very High (VH). In a way, local residents obtained a 3.90 which interpreted as Very High (VH). The combined weighted mean was 3.90 which interpreted as Very High (VH).

Engagingly, indicator 2 "Support innovation in learning by developing a technological learning environment", the obtained weighted mean for school administrators was 3.92 and for the teacher respondents was 3.97 interpreted as Very High (VH). The combined weighted mean was 3. 95 which interpreted as Very High (VH).

Concomitant to, indicator 3 "Provide a student-centered technological learning environment that can be adapted to the individual differences of students." The school administrators and teacher respondents obtained a weighted mean of 3.80 and 3.88 and interpreted as Very High (VH). The combined weighted mean was 3. 84 which interpreted as Very High (VH).

Relatively, indicator 4 "Support the improvement of teaching through technology and develop problem solving skills", the obtained weighted mean for school administrators was 3.55 and for the teacher respondents was 3.97 interpreted as Very High (VH). The combined weighted mean was 3. 66 which interpreted as Very High (VH).

More than, indicator 5 "Provide teachers with opportunity to improve their capabilities in technology application", school administrators register a weighted mean of 3.81 which is Very High (VH) In a way, local residents obtained a 3.83 which interpreted as Very High (VH). The combined weighted mean was 3.82 which interpreted as Very High (VH).

Consequently, the total weighted mean for school administrators was 3.79 while for teacher respondents was 2.85 and interpreted as Very High (VH). The combined weighted mean was 3.82 which interpreted as Very High (VH).

From this, the school administrators must evolve to that of a leader in technology if technology is to be integrated as a core teaching practice. Hamzah, Nasir, and Wahab (2021), mentioned that leaders in the education sector need to demonstrate how to use technology in their daily administrative and professional duties as a means of encouraging its use by subordinates.

Table 4. The School Leaders' Level of Digital Leadership as assessed by School Administrators and teachers themselves in term of Support, Management, and Operations.

Presented on table 4 was the school leaders' level of digital leadership in term of Support, Management, and Operations with five (5) indicators considered.

SUPPORT, MANAGEMENT, AND OPERATIONS	School Administrators		Teachers		Overall	
	WM	VI	WM	VI	WM	VI
1. Support the integration of technology with education.	3.28	H	3.75	VH	3.52	VH
2. Effectively allocate financial and human resources to ensure that technology programs are maintained.	3.07	H	3.81	VH	3.44	H
3. Ensure that teachers are making full use of the resources at their disposal by driving technological solutions, strategic integration, and improvement measures	3.12	H	3.56	VH	3.34	H

4.	Implement standardized procedures to ensure the continued improvement and refinement of technology systems	3.17	H	3.90	VH	3.54	H
5.	Integrate technology into management and operations systems.	3.29	H	3.78	VH	3.54	H
	Overall	**3.19**	**H**	**3.76**	**VH**	**3.47**	**H**

Legend:

1 = 1.00 - 1.49 = Very low (VL)
2 = 1.50 - 2.49 = Low (L)
3 = 2.50 - 3.49 = High (H)
4 = 3.50 - 4.00 = Very High (VH)

In quest for indicator 1 "Support the integration of technology with education." the school administrator respondents showed a weighted means of 3.28 which are interpreted as Very High (VH). For teacher respondents was 3.75 and interpreted as Very High. The combined average score was 3.52 which interpreted as Very High (VH).

Moreover, indicator 2 "Effectively allocate financial and human resources to ensure that technology programs are maintained." The school administrators gleaned a weighted mean of 3.07 and interpreted to be High (H). However, teacher respondents obtained a weighted mean of 3.81 and interpreted to be Very High (VH). The combined average score was 3.44 which interpreted as High (H).

In a way, indicator 3 "Ensure that teachers are making full use of the resources at their disposal by driving technological solutions, strategic integration, and improvement measures", The school administrators gleaned a weighted mean of 3.12 and interpreted to be High (H). However, teacher respondents obtained a weighted mean of 3.56 and interpreted to be Very High (VH). The combined average score was 3.34 which interpreted as Very High (VH).

In juxtaposition, indicator 4 "Implement standardized procedures to ensure the continued improvement and refinement of technology systems", The school administrators gleaned a weighted mean of 3.17 and interpreted to be High (H). However, teacher respondents obtained a weighted mean of 3.90 and interpreted to be Very High (VH). The combined average score was 3.54 which interpreted as Very High (VH).

Engagingly, indicator 5 "Integrate technology into management and operations systems." The school administrators gleaned a weighted mean of 3.29 and interpreted to be High (H). However, teacher respondents obtained a weighted mean of 3.78 and interpreted to be Very High (VH). The combined average score was 3.54 which interpreted as Very High (VH). The combined average score was 3.54 which interpreted as Very High (VH).

Taking aside, the total weighted mean for school administrators was 3.19 while for teacher respondents was 3.76 and interpreted as Very High (VH). The combined weighted mean was 3.47which interpreted as Very High (VH).

The results of the current study revealed that school administrators support technology-based professional development. Such as the support provided in this context were based upon in-service courses and seminars being held, encouraging the use of technology, information sharing, cooperation between teachers, and the promotion of technological tools.

According to Aksal (2017), effective leaders in the digital age need to support personal and professional development within their organizations at all levels. Similarly, in a study conducted by Molino, Cortese, and Ghislieri (2021) it was emphasized that encouraging teachers

to utilize new technologies in the process of digital transformation can provide both significant motivation and job engagement. In the same study, it was also stated that specialized training on digital skills should be provided to teachers as well as all administrators in leadership positions.

Table 5. The School Leaders' Level of Digital Leadership as assessed by School Administrators and teachers themselves in term of assessment and evaluation.

Presented on table 5 was the school leaders' level of digital leadership in term of assessment and evaluation with five (5) indicators considered.

ASSESSMENT AND EVALUATION	School Administrators		Teachers		Overall	
	WM	VI	WM	VI	WM	VI
1. Use technology to assess and evaluate teaching and administrative staff.	3.26	H	3.37	H	3.32	H
2. Use technology to collect and analyze data, interpret results, and publish results, in order to improve teaching and learning.	3.41	H	3.45	H	3.43	H
3. Employ diverse methods to assess the utilization of technological resources, with the aim of improving educational and operational productivity.	3.14	H	3.33	H	3.24	H
4. Evaluate the use of technology among faculty, and make decisions about staff and their professional development accordingly.	3.29	H	3.45	H	3.37	H
5. Assess technology utilization based on school evaluation indicators.	3.78	VH	3.45	H	3.62	VH
Overall	**3.38**	**H**	**3.41**	**H**	**3.39**	**H**

Legend:

1 = 1.00 - 1.49 = Very low (VL)
2 = 1.50 - 2.49 = Low (L)
3 = 2.50 - 3.49 = High (H)
4 = 3.50 - 4.00 = Very High (VH)

Based on the data gathered, for indicator 1 "Use technology to assess and evaluate teaching and administrative staff." the computed weighted mean for school administrator was 3.26 which reflected as High (H). While, for teacher respondents was 3.37 and interpreted as High (H). The weighted mean score was 3.32 which interpreted as High (H).

Also, indicator 2 "Use technology to collect and analyze data, interpret results, and publish results, in order to improve teaching and learning." the computed weighted mean for school administrator was 3.41 which reflected as High (H). While, for teacher respondents was 3.45 and interpreted as High (H). The weighted mean score was 3.43 which interpreted as High (H). Affirmatively, indicator 3 "Employ diverse methods to assess the utilization of technological resources, with the aim of improving educational and operational productivity." The school administrators gleaned a weighted mean of 3.14 and interpreted to be High (H). then, the teacher respondents obtained a weighted mean of 3.33 and interpreted to be High (H). The

combined average score was 3.54 which interpreted as Very High (VH). The combined average score was 3.24 which interpreted as High (H).

Similarly, indicator 4 "Evaluate the use of technology among faculty, and make decisions about staff and their professional development accordingly." The school administrators gleaned a weighted mean of 3.29 and interpreted to be High (H). However, teacher respondents obtained a weighted mean of 3.45 and interpreted to be High (H). The combined average score was 3.37 which interpreted as High (H).

Affirmatively, indicator 5 "Assess technology utilization based on school evaluation indicators." The school administrators gleaned a weighted mean of 3.78 and interpreted to be Very High (VH). However, teacher respondents obtained a weighted mean of 3.45 and interpreted to be High (H). The combined average score was 3.62 which interpreted as High (H).

On the whole, the results presented in Table 5, the total weighted mean for school administrator respondents was 3.38 while for teacher respondents was 3.41 and interpreted as High (H). The combined weighted mean was 2.76 which interpreted as High (H).

Principals play a substantial role in implementing teacher evaluation and effectiveness policies that effect the overall school culture (Bøe, Gulbrandsen, and Sørebø,2015). Similalry, it becomes imperative for principals to evaluate technology based instructional practices for their effectiveness, assess existing management operations based on technology for improvement and look deeper into effectiveness of digital tools for performance of teachers (McKnight, O'Malley,Ruzic, Horsley, Franey and Bassett, 2016).

Table 6. The School Leaders' Level of Digital Leadership as assessed by School Administrators and teachers themselves in term of Social Legal and Ethical Issues.

Presented on table 6 was the school leaders' level of digital leadership in term of Social Legal and Ethical Issues with five (5) indicators considered

SOCIAL LEGAL AND ETHICAL ISSUES	School Administrators		Teachers		Overall	
	WM	**VI**	**WM**	**VI**	**WM**	**VI**
1. Ensure that technology resources are allocated fairly and in accordance with the needs of students and teachers.	3.76	VH	3.90	VH	3.83	VH
2. Communicate about social, legal and ethical issues to raise awareness of responsible use of technology.	3.80	VH	3.89	VH	3.85	VH
3. Raise awareness of privacy, security, and Internet safety issues.	3.81	VH	3.78	VH	3.80	VH
4. Promote a safe and healthy technological environment.	3.76	VH	3.92	VH	3.84	VH
5. Raise awareness of copyright and intellectual property	3.89	VH	3.92	VH	3.91	VH
Overall	**3.80**	**VH**	**3.88**	**VH**	**3.84**	**VH**

Legend:

1 = 1.00 - 1.49 = Very low (VL)

2 = 1.50 - 2.49 = Low (L)
3 = 2.50 - 3.49 = High (H)
4 = 3.50 - 4.00 = Very High (VH)

Taking aside, indicator 1 “Ensure that technology resources are allocated fairly and in accordance with the needs of students and teachers.” assessment of the school administrator respondents posed 3.76 at interpreted to be Very High (VH). While, teacher respondents were 3.90 and interpreted as Very High (VH). The combined average score was 3.83 which interpreted as Very High (VH).

Meanwhile, indicator 2 “Communicate about social, legal and ethical issues to raise awareness of responsible use of technology.” the school administrator respondents posed 3.80 at interpreted to be Very High (VH). While, teacher respondents were 3.89 and interpreted as Very High (VH). The combined average score was 3.85 which interpreted as Very High (VH).

Also, indicator 3 “Raise awareness of privacy, security, and Internet safety issues.” the school administrator respondents posed 3.81 at interpreted to be Very High (VH). While, teacher respondents were 3.78 and interpreted as Very High (VH). The combined average score was 3.80 which interpreted as Very High (VH).

Engagingly, indicator 4 “Promote a safe and healthy technological environment”, the school administrator respondents posed 3.76 at interpreted to be Very High (VH). While, teacher respondents were 3.92 and interpreted as Very High (VH). The combined average score was 3.82 which interpreted as Very High (VH).

In juxtaposition, indicator 5 “Raise awareness of copyright and intellectual property”, the school administrator respondents posed 3.89 at interpreted to be Very High (VH). While, teacher respondents were 3.92 and interpreted as Very High (VH). The combined average score was 3.91 which interpreted as Very High (VH).

On the whole, the results presented in Table 6, the total weighted mean for school administrator respondents was 3.80 while for teacher respondents was 3.88 and interpreted as High (H). The combined weighted mean was 3.84 which interpreted as High (H).

In line with the studied of Willard (2017) state that widespread adoption and availability of digital technology in teaching brings new and stimulating ethical issues to the vanguard for educational administrators. Principals are required to employ their best professional judgment when dealing with technology-related ethics. They find it helpful for teachers to recognize these types of situations and to discuss them with other educators to develop awareness of new ethical issues. Furthermore, Drahos (2016) denote that head of institutions must know details about copy right and intellectual proper rights and be able to train their teachers in this regard as well.

Table 7. Summary of the School Leaders’ Level of Digital Leadership as assessed by School Administrators and teachers themselves.

Reflected on the table 7 was the summary of the evaluation of school leaders’ level of digital leadership in terms of visionary leadership, teaching and learning, professional practice, support, management, and operations, assessment and evaluation, social, legal and ethical issues**.**

SCHOOL LEADERS’ LEVEL OF DIGITAL LEADERSHIP	School Administrators		Teachers		Overall	
	WM	VI	WM	VI	WM	VI
1. Visionary Leadership	3.25	H	3.52	VH	3.39	H
2. Teaching and Learning	3.68	VH	3.56	VH	3.58	VH
3. Professional Practice	3.79	VH	3.85	VH	3.82	VH

4.	Support, Management, and Operations	3.19	H	3.76	VH	3.47	H
5.	Assessment and Evaluation	3.38	H	3.41	H	3.39	H
6.	Social, Legal and Ethical Issues	3.80	VH	3.88	VH	3.84	VH
	Overall	**3.52**	**VH**	**3.66**	**VH**	**3.58**	**VH**

Legend:

1 = 1.00 - 1.49 = Very low (VL)
2 = 1.50 - 2.49 = Low (L)
3 = 2.50 - 3.49 = High (H)
4 = 3.50 - 4.00 = Very High (VH)

The data presented on the table, it shows that in terms of visionary leadership, the school administrator respondents' assessment on the school leaders' level of digital leadership on the factors and indicators set forth posed a weighted mean of 3.25 and interpreted to be High (H). On the other hand, teachers' assessment posed a weighted mean of 2.52 and interpreted to be Very High (VH). The overall weighted mean computed was at 3.39 and interpreted to be High (H).

On the other hand, in terms of teaching and learning, weighted posed were 3.68 and 3.56 for school administrator and teacher respondents' assessment on the school leaders' level of digital leadership on the factors and indicators set forth which are both interpreted to be Very High (VH). The computed overall weighted mean was 3.58 and likewise interpreted to be Very High.

Meanwhile, in terms of professional practice, computed weighted for school administrator respondents' assessment on the school leaders' level of digital leadership on the factors and indicators was 3.79 which was interpreted to be Very High (VH) and teacher assessments was 3.85 also with a verbal interpretation of Very High (VH). The computed overall weighted mean was 3.82 and interpreted to be Very High (VH).

Consequently, in terms of support, management, and operations, the computed weighted mean for school administrator respondents was 3.19 interpreted to be High (H), while for teacher respondents, the weighted mean was 3.76 and interpreted to be Very High (VH). The overall weighted mean was 3.47 and interpreted to be High (H).

Taking aside, in terms of assessment and evaluation, the computed weighted mean for school administrator and teacher respondents was 3.38 and 3.41 which was both interpreted to be High (H). The overall weighted mean was 3.39 and interpreted to be High (H).

Looking forward to, social, legal and ethical issues of school leaders' level of digital leadership, the computed weighted mean for school administrator and teacher respondents was 3.80 and 3.88 which was both interpreted to be Very High (VH). The overall weighted mean was 3.84 and interpreted to be Very High (VH).

Based on the foregoing results of the survey on the school leaders' level of digital leadership as assessed by the two groups (school administrators and teachers) respondents in terms of visionary leadership, teaching and learning, professional practice, support, management, and operations, assessment and evaluation, social, legal and ethical issues, as shown in Table 7, it can be inferred that the overall weighted mean for school administrator respondents is 3.52 which is Very High (VH) and for teacher respondents it has an overall weighted mean of 3.66 which is also Very High (VH). The overall weighted mean for both the school administrators and teachers' respondents was 3.58 that also have an interpretation of Very High (VH).

It was observed that the studied of Tibagwa, Onen, and Oonyu (2016), also found that principals need to work with school stakeholders in creating school vision and mission through effective and enhanced strategic planning by implementing the consistent use of technology in academic monitoring, management, and administration by teachers, staff, students, schools and parents. It also supported with the study by Cano and García (2018) also pointed out that the management of school organization by using ICT in teacher supervision can help to overcome traditional administrative weaknesses and time constraints, and encourage learning outside the classroom and keeping pace with the developments in ICT and digital technology that continue to dominate the world of education.

Digital leadership is seen as an expression of management and administration that can support the latest requirements for digital transformation by ensuring total quality management including motivating, coordinating and evaluating the efforts of all stakeholders in improving teaching and learning, especially during the COVID-19 pandemic (Damayanti & Mirfani, 2021).

Table 8. Test of significant difference in the assessment of the respondents on the School Leaders' Level of Digital Leadership

Reflected on the table below is the analysis on the assessment of the two groups of respondents, that is the assessment by the school administrators and teachers on the school leaders' level of digital leadership. The test of inference to determine the significant difference on the assessment of the two groups of respondents, the researchers employed the t-test for independent sample to compare two independent groups of observations or measurements on a single characteristic and draws decision as to whether there is a significant difference present among the two sample means on a single set of scores for every variable considered. Considerably, the conduct of the test of inference considered for the level of significance at 0.05, two-tailed with a degree of freedom (df) of 8 and the corresponding tabular t-value

Variables	df	WM School Administrator	WM Teachers	t-test computed value	t-test critical value	p-value	Decision	Interpretation
Visionary Leadership	8	3.25	3.52	2.53	2.36	0.01	Ho is Rejected	There is a significant difference
Teaching & Learning	8	3.62	3.79	1.10	2.36	0.30	Ho is Accepted	There is no significant difference
Professional Practice	8	3.79	3.85	0.64	2.36	0.00	Ho is Accepted	There is no significant difference
Support, Management, & Operations	8	3.19	3.76	8.10	2.36	0.00	Ho is Rejected	There is a significant difference
Assessment and Evaluation	8	3.38	3.41	0.30	2.36	0.38	Ho is Accepted	There is no significant difference

Social Legal & Ethical Issues	8	3.30	3.88	2.21	2.36	0.02	Ho is Accepted	There is no significant difference

Gleaned on table 8 is the test of significant difference in the assessment of the two groups of respondents on the school leaders' level of digital leadership in terms of visionary leadership, teaching and learning, professional practice, support, management, and operations, assessment and evaluation, social, legal and ethical issues**.**

It shows that the gathered data for variable 1 "Visionary Leadership" the assessment of the two groups of respondents reflects the computed t-value of 2.53 which is greater than the tabular-t value of 2.36, this reflects that the null hypothesis is rejected thus there is a significant difference on the assessment of the two groups of respondents on the school leaders' level of digital leadership in terms of visionary leadership.

In the analysis of the variable 2 "Teaching & Learning", the assessment of the two groups of respondents reflects the computed t-value of 1.10 which is less than the tabular-t value of 2.36, this reflects that the null hypothesis is accepted, thus there is no significant difference on the assessment of the two groups of respondents on the school leaders' level of digital leadership in terms of teaching & learning.

Meanwhile, variable 3 "Professional Practice" the assessment of the two groups of respondents reflects the computed t-value of 0.64 which is less than the tabular-t value of 2.36, this reflects that the null hypothesis is accepted, thus there is no significant difference on the assessment of the two groups of respondents on the school leaders' level of digital leadership in terms of professional practice.

Furthermore, variable 4 "Support, Management, & Operations" the assessment of the two groups of respondents reflects the computed t-value of 8.10 which is greater than the tabular-t value of 2.36, this reflects that the null hypothesis is rejected thus there is a significant difference on the assessment of the two groups of respondents on the school leaders' level of digital leadership in terms of support, management, & operations.

Cognizantly, variable 5 "Assessment and Evaluation", the assessment of the two groups of respondents reflects the computed t-value of 0.30 which is less than the tabular-t value of 2.36, this reflects that the null hypothesis is accepted, thus there is no significant difference on the assessment of the two groups of respondents on the school leaders' level of digital leadership in terms of assessment and evaluation.

Looking forward, variable 6 "Social Legal & Ethical Issues", the assessment of the two groups of respondents reflects the computed t-value of 2.21 which is less than the tabular-t value of 2.36, this reflects that the null hypothesis is accepted, thus there is no significant difference on the assessment of the two groups of respondents on the school leaders' level of digital leadership in terms of social legal & ethical issues.

2. Teachers' Level of Digital Competence

Reflected on the following tables were the evaluation of school administrators and teachers themselves in the teachers' level of digital competence in terms of technology operations and concepts; planning and designing learning environments and experiences;

assessment and evaluation; productivity and professional practice; social, ethical, legal, and human issues; and planning of teaching according to individual differences and special needs. A summary of the evaluation was also presented for a holistic discussion of the evaluation of teachers' level of digital competence.

Table 9. The Teachers' Level of Digital Competence as assessed by School Administrators and teachers themselves in term of Technology Operations and Concepts

Reflected on table 9 was the teachers' level of digital competence as in term of technology operations and concepts with five (5) indicators considered

TECHNOLOGY OPERATIONS AND CONCEPTS	School Administrators		Teachers		Overall	
	WM	**VI**	**WM**	**VI**	**WM**	**VI**
1. I can explain how technological devices operate.	3.78	VH	3.88	VH	3.83	VH
2. I can use technological devices in different ways.	3.89	VH	3.94	VH	3.92	VH
3. I can do basic things regarding computer technologies	3.80	VH	3.85	VH	3.83	VH
4. I can explain general concepts related to computer technology.	3.78	VH	3.92	VH	3.85	VH
5. I can use technological devices effectively.	3.69	VH	3.94	VH	3.82	VH
Overall	**3.79**	**VH**	**3.91**	**VH**	**3.85**	**VH**

Legend:

1 = 1.00 - 1.49 = Very low (VL)
2 = 1.50 - 2.49 = Low (L)
3 = 2.50 - 3.49 = High (H)
4 = 3.50 - 4.00 = Very High (VH)

Looking on the table, indicator 1 "I can explain how technological devices operate" school administrator and teacher respondents obtained a weighted mean of 3.78 and 3.88 respectively, which was interpreted as Very High (VH). The combined weighted mean was 3.83 and again interpreted as Very High (VH).

Interconnectedly, indicator 2 "I can use technological devices in different ways." school administrator and teacher respondents obtained a weighted mean of 3.89 and 3.94 respectively, which was interpreted as Very High (VH). The combined weighted mean was 3.92 and again interpreted as Very High (VH).

Relatively, indicator 3 "I can do basic things regarding computer technologies", school administrator and teacher respondents gleaned a weighted mean of 3.80 and 3.85 respectively, which was interpreted as Very High (VH). The combined weighted mean was 3.83 and again interpreted as Very High (VH).

In juxtaposition, indicator 4 "I can explain general concepts related to computer technology." school administrator and teacher respondents gleaned a weighted mean of 3.78 and

3.85 respectively, which was interpreted as Very High (VH). The combined weighted mean was 3.83 and again interpreted as Very High (VH).

Connectedly, indicator 5 "I can use technological devices effectively." school administrator and teacher respondents gleaned a weighted mean of 3.69 and 3.94 respectively, which was interpreted as Very High (VH). The combined weighted mean was 3.82 and again interpreted as Very High (VH).

On the whole, the results presented in Table 9, the total weighted mean for school administrator respondents was 3.79 while for teacher respondents was 3.91 and both interpreted as Very High (VH). The combined weighted mean was 3.85 which interpreted as Very High (VH).

One of the indicators of teacher quality is the mastery of digital competencies. It shows that the main factor determining the success of digital-based learning is not only the availability of digital devices, but the competencies that must be mastered by teachers (Jannah, Prasojo, and Jerusalem, 2020).

Table 10. The Teachers' Level of Digital Competence as assessed by School Administrators and teachers themselves in term of Planning and Designing Learning Environments and Experiences.

Reflected on table 10 was the teachers' level of digital competence as in term of planning and designing learning environments and experiences with five (5) indicators considered.

PLANNING AND DESIGNING LEARNING ENVIRONMENTS AND EXPERIENCES	School Administrators		Teachers		Overall	
	WM	VI	WM	VI	WM	VI
1. I can choose the technology appropriate to the teaching process by evaluating the present technological sources	3.53	VH	3.66	VH	3.60	VH
2. I can state whether the electronic sources are suitable for the planning of learning activities.	3.57	VH	3.89	VH	3.73	VH
3. I can inform students about the benefits of using different technological devices in the process of teaching.	3.78	VH	3.92	VH	3.85	VH
4. I can use sources on the Internet in order to prepare different learning activities and teaching strategies.	3.89	VH	3.95	VH	3.92	VH
5. I can determine whether technological sources are suitable for student use.	3.92	VH	3.97	VH	3.95	VH
Overall	**3.74**	**VH**	**3.88**	**VH**	**3.81**	**VH**

Legend:

1 = 1.00 - 1.49 = Very low (VL)
2 = 1.50 - 2.49 = Low (L)
3 = 2.50 - 3.49 = High (H)

4 = 3.50 - 4.00 = Very High (VH)

For indicator 1 “I can choose the technology appropriate to the teaching process by evaluating the present technological sources”, school administrator and teacher respondents gleaned a weighted mean of 3.53 and 3.66 respectively, which was interpreted as Very High (VH). The combined weighted mean was 3.60 and again interpreted as Very High (VH).

Moreover, indicator 2 “I can state whether the electronic sources are suitable for the planning of learning activities”, school administrator and teacher respondents gleaned a weighted mean of 3.57 and 3.89 respectively, which was interpreted as Very High (VH). The combined weighted mean was 3.73 and again interpreted as Very High (VH).

In juxtaposition, indicator 3 “I can inform students about the benefits of using different technological devices in the process of teaching.” school administrator and teacher respondents gleaned a weighted mean of 3.78 and 3.92 respectively, which was interpreted as Very High (VH). The combined weighted mean was 3.85 and again interpreted as Very High (VH).

Engagingly, indicator 4 “I can use sources on the Internet in order to prepare different learning activities and teaching strategies”, school administrator and teacher respondents gleaned a weighted mean of 3.89 and 3.95 respectively, which was interpreted as Very High (VH). The combined weighted mean was 3.85 and again interpreted as Very High (VH).

Similarly, indicator 5 “I can determine whether technological sources are suitable for student use.” school administrator and teacher respondents gleaned a weighted mean of 3.92 and 3.97 respectively, which was interpreted as Very High (VH). The combined weighted mean was 3.95 and again interpreted as Very High (VH).

To summing - up, the results presented in Table 10, the total weighted mean for school administrator respondents was 3.74 while for teacher respondents was 3.91 and both interpreted as Very High (VH). The combined weighted mean was 3.88 which interpreted as Very High (VH).

It was anchored in the studied of Morra et al. (2021) which highlighted the importance of engaging educators in virtual professional development activities and reported that these endeavors ultimately benefit educators across the globe by not only equipping them with various pedagogical tools and resources for their digital instruction but also paving the way toward establishing international partnerships and collaborations.

This may support the argument that teachers are beginning to realize the benefits of digital technology-based teaching. Teachers were found to agree that they actively involve students in continuous assessment of their learning processes and thought patterns, in line with Dooley, Lewis Ellison, Welch, Allen, and Bauer (2016). Digital technology-based teaching can help students increase their motivation and thus perform better. The findings of multiple studies have concluded that digital teaching and learning have a significant positive impact on student motivation and learning performance and they recommend leveraging the advantages of digital teaching by developing practical teaching strategies (Hasin & Nasir, 2021). This is in line with the findings of a study by Nasir (2020), which found a significant positive relationship between social presence and student satisfaction through online learning.

Table 11. The Teachers’ Level of Digital Competence as assessed by School Administrators and teachers themselves in term of Assessment and Evaluation.

Reflected on table 11 was the teachers' level of digital competence as in term of assessment and evaluation with five (5) indicators considered.

ASSESSMENT AND EVALUATION	School Administrators		Teachers		Overall	
	WM	**VI**	**WM**	**VI**	**WM**	**VI**
1. In order to assess students in different respects, I can form an evaluation procedure that consists of various measurement techniques.	3.53	VH	3.56	VH	3.55	VH
2. I can plan learning activities based on technology use in order for students to yield creative products	3.49	VH	3.49	VH	3.49	VH
3. I can follow technology-based measurement and evaluation strategies which will help evaluate the performance of students via such tools as portfolio and google classroom	3.60	VH	3.76	VH	3.68	VH
4. I can use technology for the purpose of developing appropriate strategies to solve the real-life problems.	3.60	VH	3.76	VH	3.68	VH
5. I can help students find their own measurement tools to evaluate their own learning processes	3.75	VH	3.89	VH	3.82	VH
Overall	**3.59**	**VH**	**3.69**	**VH**	**3.64**	**VH**

Legend:

1 = 1.00 - 1.49 = Very low (VL)
2 = 1.50 - 2.49 = Low (L)
3 = 2.50 - 3.49 = High (H)
4 = 3.50 - 4.00 = Very High (VH)

Looking on the indicator 1 "In order to assess students in different respects, I can form an evaluation procedure that consists of various measurement techniques." school administrator and teacher respondents gleaned a weighted mean of 3.53 and 3.56 respectively, which was interpreted as Very High (VH). The combined weighted mean was 3.55 and again interpreted as Very High (VH).

Cognizant to, indicator 2 "I can plan learning activities based on technology use in order for students to yield creative products", school administrator and teacher respondents gleaned a weighted mean, both 3.49 which was interpreted as Very High (VH). The combined weighted mean was 3.49 and again interpreted as Very High (VH).

Proportionally, indicator 3 "I can follow technology-based measurement and evaluation strategies which will help evaluate the performance of students via such tools as portfolio and google classroom", school administrator and teacher respondents gleaned a weighted mean of

3.60 and 3.76 respectively, which was interpreted as Very High (VH). The combined weighted mean was 3.68 and again interpreted as Very High (VH).

Connectedly, indicator 4 "I can use technology for the purpose of developing appropriate strategies to solve the real-life problems." school administrator and teacher respondents gleaned a weighted mean of 3.60 and 3.76 respectively, which was interpreted as Very High (VH). The combined weighted mean was 3.68 and again interpreted as Very High (VH).

More so, indicator 5 "I can help students find their own measurement tools to evaluate their own learning processes", school administrator and teacher respondents gleaned a weighted mean of 3.75 and 3.89 respectively, which was interpreted as Very High (VH). The combined weighted mean was 3.82 and again interpreted as Very High (VH).

Taking aside, the results presented in Table 11, the total weighted mean for school administrator respondents was 3.59 while for teacher respondents was 3.69 and both interpreted as Very High (VH). The combined weighted mean was 3.64 which interpreted as Very High (VH).

This finding revealed that the learning process designed with digital tools is effective in terms of increasing academic success and attitude towards the assessment and evaluation course. Samosa (2021) also found that mobile assisted assessment and evaluation practices significantly increased student participation, contributed to the development of learning and, accordingly, increased academic achievement and interest in the lesson. In addition, as stated by Samosa et al, (2022), it can be interpreted that the learning needs of students about using digital technology make the use of these tools more attractive.

Table 12. The Teachers' Level of Digital Competence as assessed by School Administrators and teachers themselves in term of Productivity and Professional Practice.

Reflected on table 12 was the teachers' level of digital competence as in term of productivity and professional practice with five (5) indicators considered.

PRODUCTIVITY AND PROFESSIONAL PRACTICE	School Administrators		Teachers		Overall	
	WM	VI	WM	VI	WM	VI
1. To become a more effective teacher, I can evaluate myself in terms of my improvement in technology use.	3.43	VH	3.56	VH	3.50	VH
2. To become a more productive teacher, I can use software will increase the quality of instructional applications.	3.47	VH	3.80	VH	3.64	VH
3. In order to have cooperation among my students, their parents, and my colleagues, I can use such communication tools as teleconferencing application, such as google meet, zoom and Microsoft teams.	3.80	VH	3.89	VH	3.85	VH
4. I can use technology in my own teaching process by observing how it is used in the teaching process.	3.76	VH	3.79	VH	3.78	VH
5. I can use technological devices to send the	3.75	VH	3.93	VH	3.84	VH

results of any evaluation of the teaching process to students and their parents						
Overall	**3.64**	**VH**	**3.79**	**VH**	**3.72**	**VH**

Legend:

1 = 1.00 - 1.49 = Very low (VL)
2 = 1.50 - 2.49 = Low (L)
3 = 2.50 - 3.49 = High (H)
4 = 3.50 - 4.00 = Very High (VH)

In the analysis of table 12, indicator 1 "To become a more effective teacher, I can evaluate myself in terms of my improvement in technology use." school administrator and teacher respondents gleaned a weighted mean of 3.75 and 3.89 respectively, which was interpreted as Very High (VH). The combined weighted mean was 3.82 and again interpreted as Very High (VH).

Meanwhile, indicator 2 "To become a more productive teacher, I can use software will increase the quality of instructional applications." school administrator and teacher respondents gleaned a weighted mean of 3.47 and 3.80 respectively, which was interpreted as Very High (VH). The combined weighted mean was 3.64 and again interpreted as Very High (VH).

Looking forward to, indicator 3 "In order to have cooperation among my students, their parents, and my colleagues, I can use such communication tools as teleconferencing application, such as google meet, zoom and Microsoft teams." school administrator and teacher respondents gleaned a weighted mean of 3.80 and 3.89 respectively, which was interpreted as Very High (VH). The combined weighted mean was 3.85 and again interpreted as Very High (VH).

Taking aside, indicator 4 "I can use technology in my own teaching process by observing how it is used in the teaching process." school administrator and teacher respondents gleaned a weighted mean of 3.76 and 3.79 respectively, which was interpreted as Very High (VH). The combined weighted mean was 3.78 and again interpreted as Very High (VH).

Behaviorally, indicator 5 "I can use technological devices to send the results of any evaluation of the teaching process to students and their parents", school administrator and teacher respondents gleaned a weighted mean of 3.75 and 3.93 respectively, which was interpreted as Very High (VH). The combined weighted mean was 3.84 and again interpreted as Very High (VH).

From this, the results presented in Table 12, the total weighted mean for school administrator respondents was 3.64 while for teacher respondents was 3.79 and both interpreted as Very High (VH). The combined weighted mean was 3.72 which interpreted as Very High (VH).

In line with the study of Wabule (2016) indicated that in teaching profession, initial training is not enough due to rapid changes in technology, social structures, ideologies, and the increased diversity of the classrooms. Professional learning is integrated with day-to-day challenges and opportunities of the profession to maintain professional integrity. Cantabrana, Rodríguez, and Cervera (2019) pointed out that teachers should link their digital-age skills or competencies with their professional practice. Teaching professionals should not aim at only gaining mastery of basic computer applications, but teachers ought to manage information, create content, and use the technology to keep students connected (Portillo et al., 2020).

Consequently, effective integration of technology is achieved when students are provided an opportunity to select.

Table 13. The Teachers' Level of Digital Competence as assessed by School Administrators and teachers themselves in term of Social, Ethical, Legal, and Human Issues.

Reflected on table 13 was the teachers' level of digital competence as in term of Social, Ethical, Legal, and Human Issues with five (5) indicators considered.

SOCIAL, ETHICAL, LEGAL, AND HUMAN ISSUES	School Administrators		Teachers		Overall	
	WM	VI	WM	VI	WM	VI
1. I can state the legal issues about technology use.	3.78	VH	3.90	VH	3.84	VH
2. I can explain the important issues related to the copyright of any technological system	3.67	VH	3.89	VH	3.78	VH
3. 3. I can explain the issues related to the equal use of technology.	3.78	VH	3.92	VH	3.85	VH
4. 4. I can explain the health-related issues that could be caused by technology use in schools.	3.89	VH	3.94	VH	3.92	VH
5. 5. I can explain the safety precautions to be taken for a safer use of technology in schools.	3.90	VH	3.78	VH	3.84	VH
Overall	**3.80**	**VH**	**3.89**	**VH**	**3.85**	**VH**

Legend:

1 = 1.00 - 1.49 = Very low (VL)
2 = 1.50 - 2.49 = Low (L)
3 = 2.50 - 3.49 = High (H)
4 = 3.50 - 4.00 = Very High (VH)

Looking on table 13, indicator 1 "I can state the legal issues about technology use." school administrator and teacher respondents gleaned a weighted mean of 3.78 and 3.90 respectively, which was interpreted as Very High (VH). The combined weighted mean was 3.84 and again interpreted as Very High (VH).

Concomitant to, indicator 2 "I can explain the important issues related to the copyright of any technological system", school administrator and teacher respondents gleaned a weighted mean of 3.67 and 3.89 respectively, which was interpreted as Very High (VH). The combined weighted mean was 3.78 and again interpreted as Very High (VH).

Also, indicator 3 "I can explain the issues related to the equal use of technology." school administrator and teacher respondents gleaned a weighted mean of 3.78 and 3.92 respectively, which was interpreted as Very High (VH). The combined weighted mean was 3.85 and again interpreted as Very High (VH).

Moreover, indicator 4 "I can explain the health-related issues that could be caused by technology use in schools", school administrator and teacher respondents gleaned a weighted

mean of 3.89 and 3.94 respectively, which was interpreted as Very High (VH). The combined weighted mean was 3.92 and again interpreted as Very High (VH).

Engagingly, indicator 5 "I can explain the safety precautions to be taken for a safer use of technology in schools." school administrator and teacher respondents gleaned a weighted mean of 3.90 and 3.78 respectively, which was interpreted as Very High (VH). The combined weighted mean was 3.84 and again interpreted as Very High (VH).

So that, the results presented in Table 13, the total weighted mean for school administrator respondents was 3.80 while for teacher respondents was 3.89 and both interpreted as Very High (VH). The combined weighted mean was 3.85 which interpreted as Very High (VH).

Teachers must teach students to be effective, thoughtful, and ethical digital creators. From this, students should be afforded opportunities to use digital tools to gain the necessary skills for the 21st century in order to help them be responsible users of technology. DeVoss, Eidman-Aadahl, and Hicks, (2017) suggested that teachers must set expectations and guidelines to ensure students use technology properly. Teachers can have students' demonstrate about what they're learning in class, create a video explaining the steps for a math problem, create a graphic timeline, dissect a frog in a virtual environment, etc. These opportunities and others can help students become responsible digital creators (Oxley,2019).

Table 14. The Teachers' Level of Digital Competence as assessed by School Administrators and teachers themselves in term of Planning of Teaching according to Individual Differences and Special Needs.

Reflected on table 14 was the teachers' level of digital competence as in term of planning of teaching according to individual differences and special needs with five (5) indicators considered.

PLANNING OF TEACHING ACCORDING TO INDIVIDUAL DIFFERENCES AND SPECIAL NEEDS	School Administrators		Teachers		Overall	
	WM	**VI**	**WM**	**VI**	**WM**	**VI**
1. I can make a plan that will allow all the students to use the technological sources.	3.66	VH	3.76	VH	3.71	VH
2. I can prepare lesson plans that will allow using technology to meet the different needs of students.	3.76	VH	3.80	VH	3.78	VH
3. With the help of technology, I can design learning environments for those who need special education due to their loss of hearing or their defect of vision	3.50	VH	3.89	VH	3.70	VH
4. I can determine whether technological sources are suitable for student use.	3.52	VH	3.92	VH	3.72	VH
5. I can explain how technological sources should be used to promote inclusive education.	3.77	VH	3.91	VH	3.84	VH
Overall	**3.64**	**VH**	**3.86**	**VH**	**3.75**	**VH**

Legend:

1 = 1.00 - 1.49 = Very low (VL)
2 = 1.50 - 2.49 = Low (L)
3 = 2.50 - 3.49 = High (H)
4 = 3.50 - 4.00 = Very High (VH)

Based on the data gathered, for indicator 1 "I can make a plan that will allow all the students to use the technological sources." school administrator and teacher respondents gleaned a weighted mean of 3.66 and 3.76 respectively, which was interpreted as Very High (VH). The combined weighted mean was 3.71 and again interpreted as Very High (VH).

In addition, indicator 2 "I can prepare lesson plans that will allow using technology to meet the different needs of students", school administrator and teacher respondents gleaned a weighted mean of 3.76 and 3.80 respectively, which was interpreted as Very High (VH). The combined weighted mean was 3.78 and again interpreted as Very High (VH).

More than, indicator 3 "With the help of technology, I can design learning environments for those who need special education due to their loss of hearing or their defect of vision", school administrator and teacher respondents gleaned a weighted mean of 3.50 and 3.89 respectively, which was interpreted as Very High (VH). The combined weighted mean was 3.70 and again interpreted as Very High (VH).

Similarly, indicator 4 "I can determine whether technological sources are suitable for student use", school administrator and teacher respondents gleaned a weighted mean of 3.52 and 3.92 respectively, which was interpreted as Very High (VH). The combined weighted mean was 3.72 and again interpreted as Very High (VH).

Relatively, indicator 5 "I can explain how technological sources should be used to promote inclusive education." school administrator and teacher respondents gleaned a weighted mean of 3.77 and 3.91 respectively, which was interpreted as Very High (VH). The combined weighted mean was 3.84 and again interpreted as Very High (VH).

As whole, the results presented in Table 14, the total weighted mean for school administrator respondents was 3.64 while for teacher respondents was 3.86 and both interpreted as Very High (VH). The combined weighted mean was 3.75 which interpreted as Very High (VH).

Findings, showed that technology opens another door on how learning process become more conducive, interactive, and fruitful on both teachers and diverse learners. Technology integration in teaching plays a vital role in attaining a significant improvement in productivity and performance of teachers inside the classroom. In line with the findings of Hero (2019) that teachers and diverse learners constitute as competent members of the class through their equipment with innovative pedagogical routines, which is putting the technology in the teaching and learning experience that reflects that technology integration succeed on its mission to give a positive response in the field of education especially in the present inclusive education.

Table 15. Summary of the Teachers' Level of Digital Competence as assessed by School Administrators and teachers themselves.

Reflected on table 14 was the teachers' level of digital competence as in term of technology operations and concepts; planning and designing learning environments and experiences; assessment and evaluation; productivity and professional practice; social, ethical,

legal, and human issues; and planning of teaching according to individual differences and special needs.

TEACHERS' LEVEL OF DIGITAL COMPETENCE	School Administrators		Teachers		Overall	
	WM	VI	WM	VI	WM	VI
1. Technology Operations and Concepts	3.79	VH	3.91	VH	3.85	VH
2. Planning and Designing Learning Environments and Experiences	3.74	VH	3.88	VH	3.81	VH
3. Assessment and Evaluation	3.59	VH	3.69	VH	3.64	VH
4. Productivity and Professional Practice	3.64	VH	3.79	VH	3.72	VH
5. Social, Ethical, Legal, And Human Issues	3.80	VH	3.89	VH	3.85	VH
6. Planning of Teaching according to Individual Differences and Special Needs.	3.64	VH	3.86	VH	3.75	VH
Overall	**3.70**	**VH**	**3.84**	**VH**	**3.70**	**VH**

Legend:

1 = 1.00 - 1.49 = Very low (VL)
2 = 1.50 - 2.49 = Low (L)
3 = 2.50 - 3.49 = High (H)
4 = 3.50 - 4.00 = Very High (VH)

Considering the data presented on the table, it shows that in terms of "technology operations and concepts", school administrators respondents' assessment on the teachers' level of digital competence on the factors and indicators set forth posed a weighted mean of 3.79 and interpreted to be Very High (VH). In the same manner, teachers' assessment posed a weighted mean of 3.91 and likewise interpreted to be Very High (VH). The overall weighted mean computed was at 3.85 and interpreted to be Very High (VH).

Meanwhile, in terms of "planning and designing learning environments and experiences," school administrators respondents' assessment on the teachers' level of digital competence on the factors and indicators set forth posed a weighted mean of 3.74 and interpreted to be Very High (VH). In the same manner, teachers' assessment posed a weighted mean of 3.88 and likewise interpreted to be Very High (VH). The overall weighted mean computed was at 3.81 and interpreted to be Very High (VH).

As such, in terms of "assessment and evaluation", school administrators respondents' assessment on the teachers' level of digital competence on the factors and indicators set forth posed a weighted mean of 3.59 and interpreted to be Very High (VH). In the same manner, teachers' assessment posed a weighted mean of 3.69 and likewise interpreted to be Very High (VH). The overall weighted mean computed was at 3.64 and interpreted to be Very High (VH).

Consequently, in terms of "productivity and professional practice", school administrators respondents' assessment on the teachers' level of digital competence on the factors and indicators set forth posed a weighted mean of 3.64 and interpreted to be Very High (VH). In the same manner, teachers' assessment posed a weighted mean of 3.79 and likewise interpreted to be Very High (VH). The overall weighted mean computed was at 3.72 and interpreted to be Very High (VH).

Looking forward to, "social, ethical, legal, and human issues", school administrators respondents' assessment on the teachers' level of digital competence on the factors and

indicators set forth posed a weighted mean of 3.80 and interpreted to be Very High (VH). In the same manner, teachers' assessment posed a weighted mean of 3.89 and likewise interpreted to be Very High (VH). The overall weighted mean computed was at 3.85 and interpreted to be Very High (VH).

Taking aside, in terms of "planning of teaching according to individual differences and special needs", school administrators respondents' assessment on the teachers' level of digital competence on the factors and indicators set forth posed a weighted mean of 3.64 and interpreted to be Very High (VH). In the same manner, teachers' assessment posed a weighted mean of 3.86 and likewise interpreted to be Very High (VH). The overall weighted mean computed was at 3.75 and interpreted to be Very High (VH).

Based on the foregoing results of the survey on the teachers' level of digital competence as assessed by the two groups (school administrators and teachers) of respondents in terms of technology operations and concepts; planning and designing learning environments and experiences; assessment and evaluation; productivity and professional practice; social, ethical, legal, and human issues; and planning of teaching according to individual differences and special needs, as shown in Table 14, it can be inferred that the overall weighted mean for school administrator respondents is 3.70 which is Very High (VH), and for teacher respondents it has an overall weighted mean of 3.84 which is also Very High (VH). The average weighted mean score for both the school administrators and teachers' respondents' is 3.70 that also have an interpretation of Very High (VH).

Castañeda et al. (2018) that the teachers' digital competencies must be holistic, situated, systemic, trainable and in constant development and, in addition, susceptible to integrate the skills, attitudes and knowledge that teachers require to support the learning of their students as active participants in a digital world (Domingo et al., 2020). Teachers' positive attitude towards technological changes is a proxy for effective technology integration in instruction (Raper, 2018). Digitally literate teachers are more likely to be innovative and use different digital tools to support students learning in the classroom.

Variables	df	WM School Administrator	WM Teachers	t-test computed value	t-test critical value	p-value	Decision	Interpretation
Technology Operations and Concepts	8	3.74	3.91	1.43	2.36	0.10	Ho is Accepted	There is no significant difference
Planning and Designing Learning Environments and Experiences	8	3.74	3.88	1.15	2.36	0.14	Ho is Accepted	There is no significant difference

Assessment and Evaluation	8	3.59	3.69	1.49	2.36	0.08	Ho is Accepted	There is no significant difference
Productivity and Professional Practice	8	3.64	3.79	3.26	2.36	0.00	Ho is Accepted	There is no significant difference
Social, Ethical, Legal, And Human Issues	8	3.80	3.89	1.62	2.36	0.07	Ho is Accepted	There is no significant difference
Planning of Teaching according to Individual Differences and Special Needs.	8	3.64	3.86	3.24	2.36	0.05	Ho is Accepted	There is no significant difference

Table 16. Test of significant difference in the assessment of the respondents on the Teachers' Level of Digital Competence.

Reflected on the table below is the analysis on the assessment of the two groups of respondents, that is the assessment by the school administrators and teachers on the teachers' level of digital competence. The test of inference to determine the significant difference on the assessment of the two groups of respondents, the researchers employed the t-test for independent sample to compare two independent groups of observations or measurements on a single characteristic and draws decision as to whether there is a significant difference present among the two sample means on a single set of scores for every variable considered. Considerably, the conduct of the test of inference considered for the level of significance at 0.05, two-tailed with a degree of freedom (df) of 8 and the corresponding tabular t-value

As denotes on Table 16, is significant difference in the assessment of the respondents on the teachers' level of digital competence. To determine the significant difference in the assessment of the respondents on the Teachers' Level of Digital Competence, the researchers employed t-test for independent sample to determine the extent difference between the means of two or more groups on the variables under study.

The results of the t-test for independent sample of differences on the extent difference of two groups (school administrators and teachers) of respondents in terms of technology operations and concepts; planning and designing learning environments and experiences; assessment and evaluation; productivity and professional practice; social, ethical, legal, and human issues; and planning of teaching according to individual differences and special needs have no significant difference as can be gleaned on t- value 1.43, 1.15, 1.49, 3.26, 1.62, and 3.24respectively. Further discussion showed that the comparison of the t- value does not exceeds on the given t – critical value, giving the researchers reason to accept the null hypothesis. This may be implying that when the two groups (school administrators and teachers) of respondents

have not significantly differed on their teachers' level of digital competence as in term of technology operations and concepts; planning and designing learning environments and experiences; assessment and evaluation; productivity and professional practice; social, ethical, legal, and human issues; and planning of teaching according to individual differences and special needs.

Table 17. Test of significant relationship between the principal's digital leadership and the teachers' digital competence.

Reflected on the table is the significant relationship between the principal's digital leadership and the teachers' digital competence. As shown on table 17, the two measures summarize the strength of a linear relationship in samples only. However, the researchers want to draw conclusions about populations, not just samples, thus the need to conduct a hypothesis test or calculate a confidence interval will be utilized to test hypothesis for the population correlation to understand the linear association between the significant relationship between the principal's digital leadership and the teachers' digital competence. Thus, presented is the Pearson relation in terms of the strength of correlation of the two variables and the p-value to address the test of hypothesis.

Variables	Strength of Correlation	Computed rxy – value	p-value	Decision	Interpretation
Principal's digital leadership exert on teachers' digital competence	High Positive Correlation	.87	0.0	Ho is Rejected	There is significant relationship

Considerably, based on the data gathered the computed rxy value of .87reflects a High Positive strength of correlation. Meanwhile, the p- value 0.00, revealed the null hypothesis is rejected, thus there is a significant relationship between the principal's digital leadership and teachers' digital competence. Hence, that High Positive strength of correlation indicates that, although principal's digital leadership and teachers' digital competence tend to go up in response to one another, the relationship is strong.

In line with findings of AlAjmi (2022) revealed that digital leadership among school principals had a positive impact on teachers' technology integration during the COVID-19 pandemic. School Administrators are expected to master the necessary competencies in digital literacy to promote focused leadership for students and teachers (Christopoulous, Sprangers, & Wang, 2021). They have a duty to ensure that teachers have the resources needed to deliver high levels of knowledge for the optimum academic performance of learners. Principals also have an obligation to motivate themselves to be visionary leaders in a dynamic digital era, as they stand to empower the key stakeholders in the learning sector for current and future learning.

Table 18. Challenges Encountered of School Leaders in the Digital Era of Leadership for Effective Management

Reflected on table 18 was the challenges encountered of school leaders in the digital era of leadership for effective management as assessed by School Administrators and teachers themselves.

CHALLENGES ENCOUNTERED	School Administrators		Teachers		Overall	
	WM	**VI**	**WM**	**VI**	**WM**	**VI**
1. Lack of technology training	3.40	E	3.75	HE	3.58	HE
2. Inadequate staff development	3.55	HE	3.88	HE	3.72	HE
3. Lack of informed leadership for technology planning	3.35	E	3.76	HE	3.56	HE
4. Pedagogical issues	3.78	HE	3.69	HE	3.74	HE
5. The resistance of teachers	3.71	HE	3.67	HE	3.69	HE
6. Unreceptive staff	3.88	HE	3.92	HE	3.90	HE
7. Lack of resource management	3.67	HE	3.95	HE	3.81	HE
8. Lack of resources	3.79	HE	3.93	HE	3.86	HE
9. Poor physical facilities	3.90	HE	3.94	HE	3.92	HE
10. Inadequate technology infrastructure	3.95	HE	3.95	HE	3.95	HE
11. Inadequate facilities	3.76	HE	3.80	HE	3.78	HE
12. A dearth of technology coordinators	3.50	HE	3.65	HE	3.58	HE
13. Outdated technology	3.78	HE	3.80	HE	3.79	HE
14. Concerns about equity	3.60	HE	3.94	HE	3.77	HE
15. Bureaucracy	3.67	HE	3.89	HE	3.78	HE
Overall	**3.69**	**HE**	**3.83**	**HE**	**3.76**	**HE**

Legend:

1 = 1.00 - 1.49 = Not Encountered (NE)
2 = 1.50 - 2.49 = Moderately Encountered (ME)
3 = 2.50 - 3.49 = Encountered (E)
4 = 3.50 - 4.00 = Highly Encountered (HE)

Reflected on table 18 were the challenges encountered of school leaders in the digital era of leadership for effective management. Taking aside, indicator 1 “Lack of technology training”, school administrators respondents’ assessment on the challenges encountered of school leaders in the digital era of leadership for effective management on the factors and indicators set forth posed a weighted mean of 3.40 and interpreted to be Encountered (E). While, teachers’ assessment posed a weighted mean of 3.75 and likewise interpreted to be Highly Encountered (HE). The overall weighted mean computed was at 3.58 and interpreted to be Highly Encountered (HE).

Meanwhile, indicator 2 “Inadequate staff development”, school administrators respondents’ assessment on the challenges encountered of school leaders in the digital era of leadership for effective management on the factors and indicators set forth posed a weighted mean of 3.55 and interpreted to be Highly Encountered (HE). In the same manner, teachers’ assessment posed a weighted mean of 3.88 and likewise interpreted to be Highly Encountered

(HE). The overall weighted mean computed was at 3.72 and interpreted to be Highly Encountered (HE).

As such, indicator 3 "Lack of informed leadership for technology planning" school administrators respondents' assessment on the challenges encountered of school leaders in the digital era of leadership for effective management on the factors and indicators set forth posed a weighted mean of 3.35 and interpreted to be Encountered (E). While, teachers' assessment posed a weighted mean of 3.76 and interpreted to be Highly Encountered (HE). The overall weighted mean computed was at 3.56 and interpreted to be Highly Encountered (HE).

In a way, indicator 4 "Pedagogical issues", school administrators respondents' assessment on the challenges encountered of school leaders in the digital era of leadership for effective management on the factors and indicators set forth posed a weighted mean of 3.78 and interpreted to be Highly Encountered (HE). In the same manner, teachers' assessment posed a weighted mean of 3.69 and likewise interpreted to be Highly Encountered (HE). The overall weighted mean computed was at 3.74 and interpreted to be Highly Encountered (HE).

Consequently, indicator 5 "The resistance of teachers", school administrators respondents' assessment on the challenges encountered of school leaders in the digital era of leadership for effective management on the factors and indicators set forth posed a weighted mean of 3.71 and interpreted to be Highly Encountered (HE). In the same manner, teachers' assessment posed a weighted mean of 3.67 and likewise interpreted to be Highly Encountered (HE). The overall weighted mean computed was at 3.69 and interpreted to be Highly Encountered (HE).

Cognizantly, indicator 6 "Unreceptive staff", school administrators respondents' assessment on the challenges encountered of school leaders in the digital era of leadership for effective management on the factors and indicators set forth posed a weighted mean of 3.88 and interpreted to be Highly Encountered (HE). In the same manner, teachers' assessment posed a weighted mean of 3.92 and likewise interpreted to be Highly Encountered (HE). The overall weighted mean computed was at 3.90 and interpreted to be Highly Encountered (HE).

Paramount to, indicator 7 "Lack of resource management", school administrators respondents' assessment on the challenges encountered of school leaders in the digital era of leadership for effective management on the factors and indicators set forth posed a weighted mean of 3.67 and interpreted to be Highly Encountered (HE). In the same manner, teachers' assessment posed a weighted mean of 3.95 and likewise interpreted to be Highly Encountered (HE). The overall weighted mean computed was at 3.81 and interpreted to be Highly Encountered (HE).

Concomitantly, indicator 8 "Lack of resources", school administrators respondents' assessment on the challenges encountered of school leaders in the digital era of leadership for effective management on the factors and indicators set forth posed a weighted mean of 3.79 and interpreted to be Highly Encountered (HE). In the same manner, teachers' assessment posed a weighted mean of 3.93 and likewise interpreted to be Highly Encountered (HE). The overall weighted mean computed was at 3.86 and interpreted to be Highly Encountered (HE).

In request for, indicator 9 "Poor physical facilities", school administrators respondents' assessment on the challenges encountered of school leaders in the digital era of leadership for effective management on the factors and indicators set forth posed a weighted mean of 3.90 and interpreted to be Highly Encountered (HE). In the same manner, teachers' assessment posed a weighted mean of 3.94 and likewise interpreted to be Highly Encountered (HE). The overall weighted mean computed was at 3.92 and interpreted to be Highly Encountered (HE).

In favor of indicator 10 “Inadequate technology infrastructure”, school administrators respondents’ assessment on the challenges encountered of school leaders in the digital era of leadership for effective management on the factors and indicators set forth posed a weighted mean of 3.95 and interpreted to be Highly Encountered (HE). In the same manner, teachers’ assessment posed a weighted mean of 3.95 and likewise interpreted to be Highly Encountered (HE). The overall weighted mean computed was at 3.95 and interpreted to be Highly Encountered (HE).

In quest of indicator 11 “Inadequate facilities”, school administrators respondents’ assessment on the challenges encountered of school leaders in the digital era of leadership for effective management on the factors and indicators set forth posed a weighted mean of 3.76 and interpreted to be Highly Encountered (HE). In the same manner, teachers’ assessment posed a weighted mean of 3.80 and likewise interpreted to be Highly Encountered (HE). The overall weighted mean computed was at 3.78 and interpreted to be Highly Encountered (HE).

Looking forward, indicator 12 “A dearth of technology coordinators”, school administrators respondents’ assessment on the challenges encountered of school leaders in the digital era of leadership for effective management on the factors and indicators set forth posed a weighted mean of 3.50 and interpreted to be Highly Encountered (HE). In the same manner, teachers’ assessment posed a weighted mean of 3.68 and likewise interpreted to be Highly Encountered (HE). The overall weighted mean computed was at 3.58 and interpreted to be Highly Encountered (HE).

Behaviorally, indicator 13 “Outdated technology”, school administrators respondents’ assessment on the challenges encountered of school leaders in the digital era of leadership for effective management on the factors and indicators set forth posed a weighted mean of 3.78 and interpreted to be Highly Encountered (HE). In the same manner, teachers’ assessment posed a weighted mean of 3.80 and likewise interpreted to be Highly Encountered (HE). The overall weighted mean computed was at 3.79 and interpreted to be Highly Encountered (HE).

Emergently, indicator 14 “Concerns about equity”, school administrators respondents’ assessment on the challenges encountered of school leaders in the digital era of leadership for effective management on the factors and indicators set forth posed a weighted mean of 3.60 and interpreted to be Highly Encountered (HE). In the same manner, teachers’ assessment posed a weighted mean of 3.94 and likewise interpreted to be Highly Encountered (HE). The overall weighted mean computed was at 3.77 and interpreted to be Highly Encountered (HE).

More so, indicator 15 “Bureaucracy”, school administrators’ respondents’ assessment on the challenges encountered of school leaders in the digital era of leadership for effective management on the factors and indicators set forth posed a weighted mean of 3.67 and interpreted to be Highly Encountered (HE). In the same manner, teachers’ assessment posed a weighted mean of 3.94 and likewise interpreted to be Highly Encountered (HE). The overall weighted mean computed was at 3.77 and interpreted to be Highly Encountered (HE).

Based on the foregoing results of the survey on the challenges encountered of school leaders in the digital era of leadership for effective management as assessed by School Administrators and teachers themselves. As shown in Table 18, it can be inferred that the overall weighted mean for school administrator respondents is 3.69 which is Highly Encountered (HE), and for teacher respondents it has an overall weighted mean of 3.83 which is also Highly Encountered (HE). The average weighted mean score for both the school administrators and teachers’ respondents’ is 3.76 that also have an interpretation of Highly Encountered (HE).

It was noted that the successful integration of technology in classrooms could be challenged by factors that are internal or external to teachers; hence, institutional-level changes are required.

In line with the study of Johnson, Jacovina, Russell, and Soto (2016) identified challenges related to the acquisition of technological equipment, adapting curricula, and teaching techniques that integrate new educational tools at each level of school systems. they added the identified three external constraints to teachers: access, training, and support with technology. Firstly, if teachers lack adequate access to computers and internet connection, technology use in classrooms is not feasible. More so, employment of technology in instruction cannot be feasible if ICT infrastructure is not provided. The researchers stated that teachers need access to the internet and computer accessories like printers, digital cameras, projectors, and TV screens within the school. Besides, the ratio of computers to students is limiting, frequently reducing teachers' instructional time (Johnson et al., 2016). In addition, Aduwa-Ogiegbaen, 2009; Johnson et al., (2016) noted that teachers and school administrators might not be comfortable or confident in effectively using digital technologies. Worthy of note is that teachers and school administrators in most schools grew up without access to technology (i.e., computers or the internet.). However, the current generation of students is brought up in environments that are saturated with digital technologies. Teachers who feel incompetent with technology tend to feel less in control in their classrooms. Consequently, they tend to underuse technology in the classroom and are less likely to explore new ways to use digital technologies when designing instructional materials for their classes (Hughes, 2018).

Proposed School Leader Digital Learning Guide

Rationale

Digital learning is defined as “any instructional practice that effectively uses technology to strengthen a student’s learning experience and encompasses a wide spectrum of tools and practices.”1 This “School Leader Digital Learning Guide” is a resource to help you consider, plan, fund, implement, maintain, and adapt learning programs that meet the unique needs and requirements of the students and teachers that you serve. The guide is oriented toward digital learning principles and practices that enable and empower students and teachers of all abilities and zip codes while advancing student agency (i.e., initiative, intention, and responsibility in pursuing their education), their personalized learning, their mastery of skills and competencies, and protecting their privacy. This guide is designed to provide resources and recommendations to help leaders in an array of circumstances, including:

1. leaders with students and teachers who are experiencing digital learning in school facilities or remotely;
2. leaders for whom digital learning presents transformative or incremental change for their students;
3. leaders of a school, a school system, an education provider, or a function that supports digital learning; and

Each section contains key considerations, and guided strategies to become effective digital leader. From this it was intended to support parents and families, teachers, and education leaders in leveraging the capabilities of digital tools and resources for teaching and learning.

EMBRACE DIGITAL LEARNING LEADERSHIP		
Activities	**Key Considerations**	**Guiding Strategies**
Develop a Shared Vision and Goals	In concert with establishing, and periodically revisiting, the shared vision and goals, there are several key areas on which to focus. Consider, for example, how digital learning can strengthen students' learning experiences, empower and engage students and teachers, and promote mastery and critical thinking and personalized learning. Also consider the access from school and from home that teachers and students have for digital teaching, learning, and assessment.	1. Map out how students and teachers will acquire the hardware, connectivity, knowledge, skills, and abilities necessary to get the most out of digital learning. 2. Determine how to implement and assess digital learning, as well as manage change in those processes. 3. Establish how the standards of success within your school or school system will be met through digital learning. 4. Identify how your digital learning goals may align with other school or school system goals for learning and technology use. 5. Evaluate and address any learning losses or gains that may have been experienced by students in your school or school system and identify learning supports and other resources available to teachers, students, parents, and families to mitigate potential future learning losses, and to build upon gains.
Prioritize Professional Learning for Teachers	Consider what professional development and training is needed to expand the technology skills of teachers and administrators in your school or school system. Provide consistent support and professional development that is personalized and incentivizes teachers to meaningfully engage. Some strategies for digital learning are applicable in both face-to-face and virtual settings; however, special considerations should be made to support students learning at	1. Provide professional development opportunities which incorporate research-based practices that promote teacher professional development effectiveness. 2. Create professional learning communities (PLCs) where teachers can meet in person or online to support each other throughout the year in their use of technology. Examples include grade-level teams, content teams, and teams leveled by technology expertise or interest. 3. Establish full- or part-time coaching positions or select a

	home.	group of mentor teachers to provide ongoing professional development and instructional support for their peers. 4. Identify or develop self-paced course modules that allow for the flexible and efficient use of professional learning resources. 5. Develop and implement professional learning on topics, such as: • How to use devices, adopted curriculum, and EdTech tools; • Student privacy and at-home security, which is relevant state laws, and relevant school or school system policies; • Content and learning management systems, apps, and software, as necessary; • Other assessments to address any learning losses or gains that may have occurred and intentionally address needed innovation in ongoing practices and assessments to mitigate any future learning losses, and to build upon gains; • Pedagogical practices for digital learning that are age appropriate, specific to content areas, tied to competencies, and accelerate student learning after school closures, in both hybrid and distance learning environments; • Professional practices for digital teaching, including considerations for

		scheduling and work life balance; and • Best practices for virtual learning—remote learning enabled by digital tools—including: a. Appropriate uses of synchronous (instruction for—and learning by— students that occurs at the same time, but not in the same place) and asynchronous (instruction for—and learning by—students that does not occur in the same place, nor at the same time) connections; b. Conducting class discussions using video conferencing; c. Setting up privacy and security settings on online tools; and d. Setting up one-on-one and small group interactions using video conferencing.
ASSESS, BUILD, AND MAINTAIN INFRASTRUCTURE		
Activities	**Key Considerations**	**Guiding Strategies**
Evaluate And Manage Educational Technologies	As part of EdTech lifecycle management, it is important to audit your existing digital tools and resources to determine if they are empowering students and teachers while meeting your teaching and learning goals. Quality, accessibility, and privacy are primary considerations regardless of the amount of technology changes that are implemented.	1. Audit existing digital tools and curricular resources to determine which resources effectively support learning goals and can be transferred to a digital learning environment. 2. Consider selecting a learning management system (LMS) to organize instruction and resources for teachers and students (e.g., Schoology, Canvas). 3. Consider single sign-on technology (e.g., Clever, OneLogin, ClassLink) to help

		students, parents, and families manage multiple log-ins. 4. Provide teachers with a process for adopting new devices and EdTech tools. 5. Select a searchable and sortable resource database. 6. Select devices, tools, and resources that have strong accessibility technologies built in. 7. Procure digital learning materials and accompanying supports that are specifically designed to support language and content development, including through translation, text to speech, and other audiovisual supports.
Address Access to High-Speed Internet	To realize the full benefits of education, digital learning, and pathways to success, students need access to a personal learning device, such as a laptop or tablet, and access to high-speed internet at home. In addition, teachers need high-speed access to support their students. As a school or school system leader, you and your digital learning leadership team play an important role in advocating for digital access for all students and teachers, as well as in communicating effectively with parents about access and available resources	1. Support parents and families in their search for free or low-cost internet service plans in their area through non-profit organizations, Department of Education website, and companies that provide low-cost internet services in your community. 2. Support internet access for teachers as well as students. 3. Join the National Digital Inclusion Alliance to stay up to date on national policies and programs related to digital inclusion. 4. Partner with local internet service providers to expand access to families in your school communities. School districts across the country have negotiated with local providers for low- or no-cost internet services for students and families. 5. Consider creative solutions, if you lead in a rural area where broadband access is not easily expandable.
	Procuring, distributing,	**Device Preparation and**

Procure, Distribute, Manage, And Maintain Devices	managing, and maintaining devices for students takes time to plan, budget, and strategically execute over time. If your school or school system does not already have 1:1 take-home device, you should consider undertaking the process to procure and prepare devices, then distribute them to students, parents, and teachers. Whether the school or school system personnel prepare devices, or a service provider does the preparation and delivers the devices ready for distribution to students, it is important to plan for device preparation and distribution and then inventory management and maintenance.	**Distribution** 1. Receive devices in a secure location and provide secure storage. 2. Image (install software and updates) and inventory devices to distribute to students. 3. Coordinate with assistive technology personnel to address that specialized software and hardware are provided for students with disabilities who have a need for such software and hardware. 4. Decide who will cover the cost of insurance and purchase. 5. Provide space to prepare devices and communicate policies and procedures for device repairs to parents and students. 6. Establish and maintain a five percent pool of spare devices, which will provide continued access when devices require repair or are otherwise out of commission. 7. Design a safe device distribution process, including appropriate physical distancing and sanitization of hands, packaging, tables, devices, etc., as necessary. Engage parents and other key community members in the design process. **Inventory Management and Maintenance** 8. Design a system to track the assignment of devices to users. 9. Use asset tags for device identification and tracking. 10. Create templates for schools to inform parents and students how devices are monitored and what options may be turned on or off (for example, if the school will

		remotely turn on the webcam or GPS when a device is reported missing or stolen). 11. Communicate to students, parents, and teachers how maintenance issues with devices, including loaner or replacement devices, should be handled. 12. Attribute budget and assign staff to manage the inventory records and maintain devices.
Protect Student Privacy and Security	As schools increasingly leverage digital tools and resources, it is more important than ever to address compliance with laws that govern student data privacy and support the safe use of technology.	Ensure Student Privacy and Legal Compliance • Provide teachers with guides on how to appropriately adopt tools that have already been vetted by the school and how to engage with school administration before adopting new tools. • Train teachers and staff on how to protect student privacy and security when they collect, use, access, or share student information. • Ensure that each staff member with authority to access student data only has access to the data needed. Filtering (Internet and Content) • Implement internet content filtering to ensure students can only access appropriate content on school devices, both during and after school hours. Mobile Device Management (MDM) • Deploy a mobile device management system to efficiently provide updates and push system settings

		and apps to the devices remotely. • Manage access to the devices and student data through user accounts. Policies for Safe Use • Review, revise, and create acceptable technology use policies for online instruction, particularly to support students using a device at home. • Review and revise student and employee handbooks to include online learning requirements, expectations, and consequences. Curriculum for Teaching Digital Citizenship and Safe Technology Use • Identify age-appropriate lessons that support all students with developing behaviors that keep them safe and out of trouble, maintain the privacy of their identity and information, and address digital citizenship
Promote Digital Citizenship	For students to experience a successful digital learning environment, schools and school systems have an important role to promote, model, and teach digital citizenship, in partnership with parents as the primary educators of their children. Students, parents, families, and teachers need education, professional development, and resources regarding how to access and use technology in safe, respectful, and ethical ways. Broadly stated, "digital citizenship" refers to teaching students the skills and mindsets	1. Prior to device distribution, identify or create developmentally appropriate information and training on the appropriate use of devices and the internet, as well as how to be safe online (this information should also be reviewed and updated on an on-going basis); 2. Create rules of engagement or a digital citizenship pledge that students and their parents agree to prior to, or at the point of, distribution; 3. Provide ongoing teacher professional development around digital citizenship;

	needed to safely, respectfully, and securely operate within digital spaces—which students across the country are now experiencing, regardless of whether they possess the skills to learn in a fully virtual or hybrid environment. Educating on, and modeling of, good digital citizenship includes teaching the behaviors and actions students need to safely, ethically, and responsibly. It is important for schools and school systems to support professional learning and development for teachers in digital citizenship in a way that personalizes the learning needs of the individual student. In turn, students need to be equipped with the tools, strategies, and resources for learning and acquiring digital citizenship skills, both at home and at school. Ideally, lessons on digital citizenship take place before students, parents, families, and teachers have devices in their hands and should continue throughout the school year. In addition, you and your digital learning leadership team should consider how to fully communicate the legal obligations and school system policies outlined in the previous section to students, parents, families, and teachers.	4. Partner with parents, as the primary educators of their children, through the provision of resource materials and school-based parent events to support successful digital citizenship skill acquisition by your students; and 5. Explore opportunities to include digital citizenship lessons in your curriculum which meet the individual needs of your students throughout the school year, which may incorporate topics such as: • The use of good passwords, password managers, and browser plug-ins to limit online tracking ads; • Protecting digital identity, developing appropriate communication skills and positive relationships, protecting against cyberbullying and potential predators; and • Understanding the mental health and wellness aspects of screen time and making good choices online. 6. Coordinate support with school or other district personnel as appropriate (e.g., special education practitioners, counselors, social workers, nurses) to work as a team in supporting students' social and emotional health. • Collaboratively determine strategies for response if the safety of any learning in your school, or school system, or that of an individual student has potentially been compromised.

		• Be aware of community supports that are available for students who need additional support, as well as the processes and protocols to follow in identifying students for timely referral to services.
PERSONALIZE LEARNING FOR STUDENTS		
Activities	**Key Considerations**	**Guiding Strategies**
Implement Competency-Based Learning	Digital learning can support competency-based education, in which students advance after demonstrating mastery of a key skill or concept. In a competency-based system, students work individually and in teams to continuously learn content and develop skills (e.g., communication, critical thinking, problem solving, creativity) and receive timely, differentiated support based on their individual needs. In this sense, competency-based education enables personalization and learning continuity, regardless of location.	1. Design learning outcomes that emphasize higher order thinking skills that promote student independence and creativity, prepare students for college, career, and lifelong learning. 2. Commit to ensuring that all students—including students from low-income families, students of color, students with disabilities, and English Learners (ELs)—are able to demonstrate mastery of content. 3. Identify that competencies include explicit, measurable, and transferable learning objectives. 4. Evaluate whether additional best practices, supports, or resources are available and needed for your students to address any learning loss or gains that may have occurred, and to mitigate future learning loss and build upon gains. 5. Develop clear and transparent expectations for student performance to demonstrate mastery and put mechanisms in place to establish consistency in advancement.
Assess Student Learning in Real-Time	Quality assessments help teachers gain feedback about what their students are really learning. Real-time, meaningful assessments enabled by technology—whether graded,	1. Coach teachers to check for understanding using frequent formative assessments. 2. Identify adaptive software that will provide the student with immediate feedback to support

	non-graded, in class activities, or student self-assessments—are an integral component of personalized learning. Assessments also inform students on their own progress and advise parents and teachers how to best support student learning.	progress. 3. Confirm assessment software is compatible with assistive technology used by students with disabilities, including screen reader software. 4. Adopt grading systems that are aligned to personalized learning paths, separate behaviors from academics, and encourage students to engage in additional practice until they demonstrate mastery of a concept. 5. Identify or design diagnostic and summative assessments that can be used in school or at home. 6. Identify other assessments to address learning losses or gains, and intentionally address needed innovation in ongoing practices and assessments to mitigate any future learning loss or build upon any gains. 7. Create a model for communicating with students and families, in multiple languages, including: • Timing and methods of student assessments and grades; • Use of online engagement to assess student progress; • Approach to supporting students who are not on track to meet grade-level standards and benchmarks; and • Collection of data for accountability purposes, ensuring that metrics used to measure student engagement do not violate applicable privacy policies.
Support Learner Variability	An important consideration for planning and implementing effective digital learning is the selection of EdTech products	1. Ensure appropriate parental consent frameworks are in place under the inclusive education, if the school will be billing

	that support the full diversity of learners, including, but not limited to, students with disabilities. Assistive technology software and systems, for example, can increase font size, dim distracting background text, translate text to speech, or provide closed captions to aid students with disabilities. For Filipino students, many programs integrate translation and interpretation tools or provide rich imagery or video resources to support linguistic development and comprehension.	Medicaid for services. 2. Establish effective communication and engagement with parents throughout the Individualized Education Program (IEP) process. 3. Support holding IEP team meetings and 504 team meetings remotely with all team members, including special educators and parents. 4. Work closely with school counselors to address that schools provide mandated counseling and psychological support in the manner written in students' IEPs using remote tools. 5. Ensure that students with disabilities have access to instructional materials, accommodations, scaffolds, or assistive technologies that are tailored to their specific needs as identified in their IEP. 6. Identify tools and resources that are designed to support language development through challenging and grade-appropriate content, translation, text to speech, and other audiovisual supports. 7. Continue to identify and assess students to confirm they receive adequate language instruction and grade-appropriate content. 8. Communicate with parents in their preferred language and make free translation and over-the-phone interpretation services available for students and families.
COLLABORATE WITH PARENTS AND FAMILIES TO SUPPORT STUDENTS		
Activities	**Key Considerations**	**Guiding Strategies**
Inform And	As a school or system leader, one of your most important roles is establishing two-way	1. Establish norms for staff members on how and when to communicate with students, parents, and families, including guidance on

Empower Parents and Families	communication with parents and families. Families are essential to the long-term success of their student's digital learning, often assuming the role of a coach, facilitator, or tutor. Additionally, parents and guardians are partners in ensuring devices get charged, are cared for, and are used in responsible ways. Effective communication about digital learning will establish that parents and families are informed and engaged and trust the decisions that education and school leaders are making.	the primary tools and methods for communication. Confirm staff members are utilizing tools for listening to the ideas and concerns of parents and families and that parents and families understand that, while educators will use a variety of tools, they will not be constantly available. 2. Establish scheduled check-ins, especially during school closures. For example, teachers in rural school have "office hours" at designated times during the week for all teachers to be able to check and respond to emails or arrange to talk via telephone or video chat with parents and families. 3. Use multiple communication platforms that are familiar to students, parents, and families including recorded videos, phone calls, video conferencing, social media apps, and texting apps. Identify that communication platforms are accessible to students, parents, and families with disabilities, and Limited English Proficient parents and families. 4. Create a central website for students, parents, and families to receive up-to-date information and resources. Confirm that the site is mobile-friendly to accommodate families that access the internet via smartphones. For simplicity and ease of access, use a single platform across all schools and programs in a school system. 5. Establish the understanding with your teachers that parents, as the primary educators of their children, need and rely on effective, responsive, and timely

		communication from teachers and staff to promote and support student success. 6. Provide communications with staff, students, and families that are authentic and model a positive and hopeful tone to improve the emotional state of your learning community. 7. Create models for communicating with parents about specific learning outcomes, expectations, and resources available, recognizing that parents may not have access to personal leave or other time off to work with their children. 8. Provide information about access to free translation and over-the-phone interpretation services. 9. Inform families about how to be digital partners, including sharing best practices on proper care and maintenance of the device, screen time practices, online safety, and digital citizenship. 10. For parents and families of students with disabilities, provide training sessions to support their children's needs and requirements at home, including occupational or physical therapy services that require in-person care.
Support Student Health and Wellness	Schools are important community spaces and play a pivotal role in the social development and mental health and well-being of students. In a digital learning environment, it is important for school leaders and digital learning leadership teams to consider how to effectively leverage technology, partner with parents, establish safeguards, and build safe and supportive communities. In	**Teachers can deploy a number of strategies to meet the individual needs identified in their students, which may include the following:** 1. Set up weekly check-ins or office hours for teachers; include the option for brief, consistent "wellness checks." Safeguards to prevent teacher over-extension should be explicitly planned at the school or school system level, acknowledging that teachers may have competing demands for their

	addition, the potential impact of the various fully virtual or hybrid distance learning environments on children should also include considering how to explicitly support the social and emotional health and wellness of students.	time during school closures or limited school openings; 2. Create virtual teacher lounge hours or professional learning networks for educators to discuss concerns and share best practices; 3. Establish consistency and routines for teachers by sharing a clear daily and weekly calendar and learning goals with parents and families; and 4. Allow for flexibility in schedules and lesson plans, with the understanding that teachers may have varied access to technology and competing responsibilities. **For students:** 5. Recommend that teachers work to intentionally carve out time so students may personally connect with each other to meet social needs; 6. Establish that each student within the school has at least one designated staff member who will maintain contact with the student, touching base with them and their families during times of school closures or limited school openings and 7. Schedule fun, shared experiences for students and educators that are authentic to your school community, such as shared read-aloud, themed lunches, maker sessions, or online fitness classes. **For parents and families:** 8. Provide school or school system contacts, guidance, and resources in multiple languages to all families for supporting the social and emotional health and wellness of their children and themselves, including information on mental health services; 9. Connect all families with

		community supports and resources (e.g., share information in multiple languages about resources for times of uncertain economic situations and, 10. Foster care liaisons to continue to identify and serve homeless, at-risk, and foster care students and to maintain the positive relationships students have established with school staff.

CONCLUSIONS

In view of this study, the following conclusions were made:

1. The school leaders' level of digital leadership as assessed by school administrators and teachers in terms of visionary leadership, teaching and learning, professional practice, support, management, and operations, assessment and evaluation, social legal and ethical issues show that are indeed very high; hence it can be concluded that both school administrators and teachers adhere to all the school leaders' level of digital leadership.
2. Since the resulting data revealed that there is a significant difference in the assessment of the two groups of respondents on the school leaders' level of digital leadership as regards to visionary leadership and support, management, and operations. However, teaching and learning, professional practice, assessment and evaluation, social legal and ethical issues was observed has no significant difference.
3. The teachers' level of digital competence as assessed by School Administrators and teachers as regards to technology operations and concepts; planning and designing learning environments and experiences; assessment and evaluation; productivity and professional practice; social, ethical, legal, and human issues; and planning of teaching according to individual differences and special needs shows as matter of fact very high ; hence it can be concluded that both school administrators and teachers observed very high in their digital competence.
4. There is no significant difference in the assessment of the two groups of respondents on the teachers' level of digital competence in terms of technology operations and concepts; planning and designing learning environments and experiences; assessment and evaluation; productivity and professional practice; social, ethical, legal, and human issues; and planning of teaching according to individual differences and special needs.
5. There is significant relationship between the principal's digital leadership and teachers' digital competence. It may probably be attributed to the fact that principal's digital leadership, as far as they are concerned, affects to and its teachers' digital competence.
6. It was observed a high challenge encountered in the digital era of leadership for effective management as assessed by School Administrators and teachers themselves.

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