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School Principal Digital Leadership and Technology Integration of Public Elementary Teachers in Davao Del Norte Division

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1. The Problem and Its Setting

Despite the advantage and widespread use of technology in various aspects of life including teaching and learning, data indicate that teachers continue to not use such resources in the classroom. According to recent data, only 9% of instructors utilize technology for more than 50% of class time, and 16% say they never use it at all. This is despite the fact that 86% of teachers have desktop computers available in their classrooms. Less than half of teachers used technology daily to instruct students, conduct research and gather information, check student achievement, and create lesson plans (Lamb, 2011).

In Ghana, majority of teachers do not include technology into their lessons. The instructors' resistance to or lack of use of technologies in the classroom is caused by a number of different variables. The use of technology by teachers in the classrooms may be significantly influenced by a number of important elements and considerations (Gyasse, et al. 2019). The specific issue was that statistics revealed a higher percentage of instructors in Ghanaian schools were either reluctant to use teaching-related technology in instruction or did not use it at all, despite the continued global growth of technologies (Abdul-Hamed, 2020).

In the Philippines, of the 55 countries included in the Information Society Index (ISI), the country is ranked 48th in terms of readiness and capacity to absorb advancements and development in information and communication technologies (ICT). The National Capital Region had the highest percentage of computers at 87.30% among the 5,217 schools surveyed, and only 18.24% of staff members were proficient computer users. Additionally, only a very small percentage of schools (13.13%) had school leaders who had received training in technology integration in the previous five years (Bonifacio, 2017). In a similar vein, faculty members' lack of technical expertise prevents them from utilizing new technology, which stops them from bringing them into the classroom and leaves many of them lying unused at the school. This is demonstrated by the results showing that educators must not only learn how to use technology at the elementary level but also how to incorporate it into their courses (Hero, 2019).

Meanwhile, in Davao City, Castillo (2018) revealed that some schools have very rigid policies about computer use, and they appear to be more restrictive than accommodating. They would prefer that faculty members and students refrain from using the Internet in their free time, paying special attention to social media, games, and other activities that could divert them from their studies specifically studying and teaching. This time, schools make a concerted effort to follow the new K–12 curriculum, which focuses on more useful uses of technology.

Davao del Norte is experiencing the same issue. Since it takes time to prepare, teachers are not encouraged to use technology in the classroom. It is indeed true that some teachers lack a technical mindset and require more technology education. In fact, several of the instructors only use technology in the classroom when they are being observed.

These circumstances, however, were merely observations and had not yet been thoroughly investigated through research. The researcher was motivated to investigate the variables involved by the dearth of studies involving main digital leadership and technology integration. As a result, the researcher investigated how much principal digital leadership affect technology integration. Also, the link between the factors involved was examined. The goal of this undertaking would be to inform decision-makers so they may create policies, programs, interventions, projects, and other initiatives that would help public schools further integrate technology into the classroom.

Review of Significant Literature

The related literature and studies of this study provided inputs about principal digital leadership and technology integration. The independent variable is principal digital leadership. It has six observed variables specifically leadership and vision, learning and teaching, productivity and professional practice, support management and operations, assessment and evaluation, and social, legal, and ethical issues (Brunson, 2015). Meanwhile, the dependent variable is technology integration which has three indicators, namely: the teacher’s attitude, subjective norms and perceived behavioral control (Lamb, 2011).

Principal Digital Leadership

In order to meet the demands of the digital economy and workforce, a principal must encourage his teachers to adopt and integrate technology into the classroom and to develop their knowledge and expertise in this area. Since technology is pervasive and one of the fastest-growing industries in modern society, it is essential for principals to adopt and use technological advancements. Because of this, the new tasks of principals might include finding new technologies, setting up computer laboratories, educating teachers on how to effectively incorporate ICT into the curriculum, and enhancing their leadership skills in technology integration (Hero, 2020).

The necessity to develop a technology use plan in support of instructional goals and school objectives should be understood by principals. In terms of innovation in the classroom and its effect on student learning, principals should be powerful visionaries who are also familiar with pedagogical principles. Technology utilization has the potential to either significantly accelerate change or result in the waste of precious resources. The principals are responsible for choosing wisely. Computer teachers, who play a crucial role in integrating technologies in the classroom, and school administrators, who are primarily responsible for technology integration in schools, must both have a keen interest in and a highly positive attitude toward technology integration (Shyr, 2017).

The goals and standards of educational technology must be understood by the school's technological leaders. They must be able to create staff development initiatives for instructors and comprehend the advantages of how technology should be used into the classroom (Beytekin, 2014). How they will encourage their teachers to learn, use, and integrate technology into their curriculum is a key aspect of technology leadership (Speedy & Brown, 2014).

As demonstrated by Basitere and Ndeto-Ivala (2017), the use of technology may promote profound and significant collaborative learning. The outcome discreetly made a significant contribution to a great performance and technological competency. In addition, the study by Hero (2019) found that teachers are adept at integrating technology into their lessons and viewing it as a pedagogical innovation in the educational paradigm.

According to Apsorn, Sisan, and Tungkunanan (2019), the majority of the educational technology issues in Thai education are caused by administrators who are not ready to use information technology. Administrators still do not understand the value of innovation and information technology and are not ready to use learning technologies. Administrators lack the skills, experience, and knowledge necessary to use media to develop cutting-edge information technology, as well as a variety of components for teaching and learning.

Moreover, Brunson (2015) found that the majority of Thai school administrators still struggle with ICT leadership, which has a significant negative impact on educational leadership and management at the school and systemic levels of education. Six observed variables for major technological leadership were examined in this study. These are leadership and vision, learning and teaching, productivity and professional practice, support management and operations, assessment and evaluation, and social, legal, and ethical issues.

Leadership and vision. It is the first indicator of principal technology leadership. To be more effective instructional leaders, principals must have a vision for integrating technology (Zhong, 2017). They must be dedicated to utilizing technology effectively in order to achieve this aim. In order to lead in a technologically advanced educational setting, school directors must possess certain technological abilities (Perkins-Jacobs, 2015).

The educational system is under constant pressure to improve, streamline, alter, adapt, and become more effective and efficient as a result of digital technologies. At the core of this transition is the school leader. The head of a school will not be able to fully utilize the potential of contemporary digital technologies if they do not comprehend the trends in educational technology. With these technological developments, it is crucial for a school's leadership to have a clear vision (Richardson et al., 2013).

Since students entering the workforce require greater training and exposure with digital technologies, technology in schools is becoming increasingly important. But, without schools providing these learning opportunities, pupils find themselves utterly underprepared for the demands of the modern workforce. Teachers get the skills needed to prepare these pupils primarily through professional development opportunities that frequently immediately coincide with the vision outlined by the school administrator. Nonetheless, insufficiently tech-savvy executives frequently guide pupils and teachers (McLeod & Richardson, 2011).

Educational change in the 21st Century requires input from leaders with an instructional perspective for such things as digital literacy and digital citizenship (Rivard, 2010). Thus, it is essential that administrators are capable of effectively integrate technology into their school vision, Principals must guarantee that technology serves as an instrument to improve the quality of education, teaching, and governance or they risk squandering precious student and teacher time along with limited school and district resources (Richardson et al., 2013).

Afshari, Bakar, Luan, Samah, and Fooi (2008) presented extensive information on how school administrators must motivate others and forge shared visions; exhibit effective uses of technology in learning and teaching; implement technology as they encourage, manage, and run the school; and actively participate in the assessment and evaluation of technology in the classroom. Yet, for these four areas, the school administrator must cultivate a common understanding of technology in their institution (Richardson et al., 2013).

K–12 administrators play a crucial role in guiding their schools' transition from a technologically reliant learning environment to a technology-based learning community in order to satisfy the demands of 21st century learning. The effectiveness of teaching and teachers' capacity to use technology into teaching are influenced by principals' attitudes about technology (Zhong, 2017). The leadership of principals has reportedly had a good impact on teachers'

usage of technology in the classroom (Raman, Don, & Kasim, 2014). The study made clear that the school's principal served as a role model for students and had an impact on instructors' behavior through their interactions.

It seems that the development of technology has opened up new paths and chances for society, especially in education. Teachers should act as facilitators and agents of technology in the classroom, and principals should have the ability to be technology know-how leaders and advocates given current trends in 21st-century education where technology infusion is highlighted as one of its key aspects (Hero, 2020). The principals, who serve as the school's technological leaders, supposedly need to be familiar with the objectives and requirements of educational technology. They must be able to create staff development initiatives for instructors and comprehend the advantages of how technology should be used into the classroom (Beytekin, 2014).

Learning and teaching. Technology leaders should be principals who can integrate new technology in their schools. The usage of technology on campus can be shaped by school administrators so that there is a consistent strategy used throughout the institution, improving student outcomes. Being a technology leader enables school leaders to center the mission and vision of their institution around technology. It provides students with hints about how their teachers and staff are using technology in the classrooms (Thompson, 2021). The social pressure on administrators to utilize technology as a tool for implementation is one of the most potent forces driving up the use of technology in teaching and learning. Yet, very few school administrators declare themselves to be technology specialists because they have limited practical expertise (Uur & Koç, 2019).

In order to foster innovative uses of ICT in education and to help teachers adopt positive attitudes toward them, several researchers are highlighting the significance of clear leadership. A key component of the successful use of ICT in schools is school leadership. By creating a positive working atmosphere, crystal-clear visions, and high-quality infrastructure, effective leadership can support the development of digital literacy in students. Helping teachers complete professional development linked to using ICT in the classroom is a crucial aspect of ICT leadership (Hatlevik & Arnseth, 2012).

Unfortunately, many school administrators are not adept at using technology or have insufficient knowledge of technology integration methods. Administrators should refocus their professional development programs because principal training programs typically do not focus on technology capabilities. School principals and central office administrators are not learning how to use technology successfully in administrative training classes (Perkins-Jacobs, 2015).

According to Dias (2001), who was referenced by Ugor and Koc (2019), it is crucial for school principals and other leaders to understand what best practices in technology integration are. Principals may be open to implementing technology, but they require more specialized professional development to enable them to do it effectively. Principals are the building's instructional leaders, but they cannot assess how teachers and kids are using technology effectively if they do not know how to utilize it themselves (Papaioannou & Charalambous, 2011).

Productivity and professional practice. Technology's rise opens up new societal paths and opportunities, most notably in education. The effective use of technology in the classroom is essential for raising teacher performance and productivity levels (Hero, 2019).

Principals must think that effective technology integration raises student achievement if they are to allocate cash for technological resources, build a vision for technology integration, and push for adequate teacher professional development. It was thought that schools with principals who had undergone training in technology integration had greater success with the use of technology than schools with administrators who had not (Machado & Chung, 2015).

The pedagogical use of technology in schools is closely related to the leadership of the school. It has been discovered that school leadership for ICT is crucial for motivating teachers to use ICT in their classrooms in novel ways. By providing the appropriate infrastructure, a positive work atmosphere, as well as clear goals and aspirations for the pedagogical use of ICT, school leadership for ICT is also essential to fostering the development of digitally competent students. The need for school leaders to supervise, counsel, and implement professional development initiatives when necessary in the teachers' pedagogical practice is indicated by pedagogical leadership (Jackson & Marriott, 2012). Setting a direction for educational practices and assessment using ICT should use pedagogical leadership for ICT (Ottestad, 2013).

It is the role of school administrators to motivate and assist teachers in integrating technology into their lessons and instruction, particularly at a time when the Internet of Things is quickly transforming classrooms in ways that have never been envisaged. The use of Smart Whiteboards and other interactive digital media during interactive learning in classrooms means that school administrators must stay up to date with the newest technological advancements. Hence, school leadership preparation programs should use technology to create school principals who are prepared for the future and who can guide teachers and students as learning experiences become ubiquitously virtual (Aldowah et al., 2017; Esplin, 2017).

However, according to Schrum et al. (2011), 92% of courses for developing leaders do not use technology. In many US states and institutions, programs that prepare students for school leadership are not required to include educational technology. Resulting from their initiative and dedication to meet the demands of 21st-century education, leaders educate themselves on the newest technologies and encourage teacher collaboration and technology vision. One of the top three difficulties faced by technology leaders, which remained constant from 2017 to 2019, according to key findings from the CoSN's 2019 K-12 IT Leadership Survey Report (2019), was a lack of professional development. Leaders in technology said that there was a shortage of professional training and training that was not relevant.

Support management and operations. It serves as one of the markers of principal technological leadership. Technology management should be seen holistically, taking into account all aspects of the management process rather than only simply in terms of technology. Technology leadership roles in schools have a wide range of responsibilities, from making sure that classroom lighting is adequate to guaranteeing safe computer use, preserving equal access to technology, and preventing gender inequity in technology use (Banoglu, 2011).

Since they may encourage the use of information communication technologies (ICT) at a strategic level and even facilitate the introduction of media literacy education activities into teaching, school leaders play a crucial role in managing media and technology integration into school teaching. According to research done by Polizzi (2011), principals' support for ICT integration practices depends on both contextual-level and personal factors. The amount of ICT equipment that teachers have access to in their school, teachers' skill levels and usage patterns, and teachers' attitudes toward using ICT are all examples of contextual variables. Principals' views toward using ICT in the classroom, their exposure to ICT training programs, and their own assessments of their own ICT proficiency are all personal-level variables.

All school improvement initiatives, including those that are technological in nature, are expected to be led by school administrators. So, they carry out this responsibility in their roles as technology leaders. In accordance with their technological capabilities, school administrators support all school stakeholders financially, socially, and morally so that ICTs can be used in education to their fullest potential. Compared to infrastructure and spending, technology leadership is a better predictor of outcomes. Due to the multiple responsibilities placed on school leaders, technical leadership is therefore seen as being crucial to Information Communication Technology (ICT) integration (Mwawasi, 2014).

According to Grady (2011), cited by Panganiban and Flores (2021), the principal's responsibilities as the school's technology leader include establishing the vision and goals for technology in the school, carrying the technology banner in the school, modeling technology use, supporting technology use in the school, participating in professional advancement initiatives that concentrate on technology, integrating technology in student learning activities, and providing opportunities for professional growth.

Assessment and evaluation. The emphasis of this is on encouraging the evaluation of instructional approaches, especially practices that employ technology to gauge efficacy. The efficiency of professional development programs offered by the school to support teachers' needs and their usage of technology is assessed by school administrators. They utilize it as a criterion for rating the effectiveness of faculty members' usage of technology. Via formal or informal observations and/or walk-throughs, they keep an eye on how technology is used to assist teaching and learning. They assess the school's IT strategy as well to see if objectives and benchmarks are being reached (Brunson, 2015).

ICT integration in educational systems has emerged recently as a result of shifting socioeconomic and cultural conditions, which call for leaders to pay close attention to them. Due to the requirement for substantial changes in educational institutions and more participative and student-centered pedagogical models, this challenge is both pertinent and challenging (Capilla et al., 2015). Technology changes in the educational environment necessitate not only the purchase of technical equipment but also its systematic and effective use. In light of this, it is crucial to develop teacher training programs that assure the use of new technologies as practical support tools, primarily for students and teachers (Quidasol, 2022).

The employment of ICT in a school is greatly influenced by the school leadership. The ability to advance the use of technology in education rests on public school leaders. Research demonstrate the importance of strong technological leadership in today's education. According to Schrum et al. (2011), school administrators with technological skills are better able to integrate the use of technology in the classroom. Making better technology purchasing decisions and more effective use of technology in the classroom could result from improving technology leadership (Quidasol, 2022).

Teaching is improved by evaluating educational tactics. Yet, there are additional indications that can be utilized in addition to student grades to measure the effectiveness of instruction. According to study findings by Marshall et al. (2011), modifications to teaching methods enhanced student performance and emphasized the necessity of assessing and changing instructional strategies to address problems with both students and teachers. The study by Sincar (2013) aimed to identify the difficulties faced by school administrators when exercising their technological leadership. Findings state that among the difficulties faced by school administrators in performing their role as technology leaders are a lack of resources, resistance to innovation, a lack of in-service training, and bureaucracy.

When employees desire to remain in their comfort zones, it is challenging to bring about change in an organization. When there is a lack of support, a leader's vision is difficult to realize. While some schools receive a plenty of funding, others do not. Such could occur if the political system does not value equity. Considering the results mentioned above, there is still a goal to determine how technological leadership affects education. As a result, Voogt et al. (2013) urged action on the creation of leadership models for successful technology implementation.

Social, legal, and ethical issues. In this area, school leaders put policies and initiatives into place that educate staff and students on social, ethical, and legal issues relating to technology. To encourage responsible use of technology, they identify, communicate, model, and enforce social, legal, and ethical principles. Additionally, they support and enforce technology-related privacy, security, and online safety. Additionally, they make sure that technology use adheres to ethical and healthy environmental standards. Improving formal and non-formal education systems through investments in ICT is crucial for school improvement (Tong &Trinidad, 2010). The budget allocation for various school activities, including the use of ICT, is a concern for school administrators because they serve as the principal accounting officers in their institutions.

ICT deployment in schools would be successful, according to Betz (2011), if school leaders supported, learned, provided modern infrastructure, sufficient professional development, and support personnel during its implementation. It is the duty of school administrators to oversee the implementation of ICT initiatives in their institutions. In addition to the importance of ICT infrastructure in schools, Anderson and Dexter's (2010) study on the technology leadership behaviors of school principals found that school leadership was the most critical determinant of how successfully ICT was implemented in schools.

In addition, the explosive growth in laptop and smartphone use over the past five years has changed both teaching procedures and the role of the school principal as a technology leader. With an understanding of the diversity of students in terms of ethnicity, language, special needs, and gender, principals must fight for equity and access to new technologies in their schools. The educational leader can address the challenges of using developing technologies

by bridging the "digital divide" gap, advocating safe internet use policies, abiding by copyright laws, and guaranteeing environmentally sound practices (Garland, 2010).

Technology Integration

In many areas of endeavor, technology is a change agent. Technology plays a crucial role in education because it supports teachers in encouraging students to participate in active learning and enhances their academic program experiences. Modern technology advancements have altered education (Richardson, Beck, LaFrance, & McLeod, 2016).

The teaching methods used in many educational systems underwent a paradigm shift as a result of technology advancement as well. Despite the importance and advantages of technology, there are still certain difficulties in integrating it into educational systems (akrolu & ztürk, 2017). Also, the incorporation of technology affects how information is structured and delivered globally and can affect student learning, particularly when schoolteachers are digitally literate and understand how to assimilate and incorporate it into the classroom (Leong, 2016).

The curriculum must integrate technology effectively in ways that enrich and improve the learning experience. Four essential elements of learning must be supported: active participation, group participation, frequent contact and feedback, and connection to real-world experts (Marzano, 2015). When using technology is routine and visible, and when it supports curriculum objectives, effective technology integration is achieved. Additional studies that highlight the top techniques used by educators who successfully integrate technology are required. Also, the three main strands of technology integration were classified as follows: interactive, learning experiences and assessment, and research and problem-solving (Bataller, 2018).

The application of technology resources, including as computers, handheld devices, digital cameras, CD-ROMs, software, and the Internet, to assist teaching and learning across all subject areas and grade levels. In other words, this relates to the application of technology to the management of classroom activities, instruction, and lesson planning. Investigating what or who influences technology integration in the classroom has become possible thanks to the substantial increase in technical resources over the past ten years (Lamb, 2011).

Furthermore, to ensure that everyone has access to curricula, interactive learning environments for effective technology integration must maintain a climate and culture for learning through diverse tools and tactics (Bataller, 2018). While evaluating teachers' views as predictors of technology integration: an application of the theory of planned behavior, Lamb (2011) found that three indicators—teachers' attitudes, subjective norms, and perceived behavioral control—were substantially connected with this practice.

Teachers' Attitudes. The decision to integrate technology in K–12 classrooms was previously studied and found to be significantly influenced by teachers' attitudes toward technology. The degree to which a person views a particular behavior favorably or unfavorably is referred to as their attitude. As with technology integration, beliefs are generated about an object by linking it with specific properties, such as with other things, characteristics, or events. Attitudes are formed from these beliefs (Lamb, 2011).

Additionally, factors including assurance, liking, curiosity, awareness, comfort, and usefulness might influence how people feel about technology. Teachers' views significantly affect how they adopt or use computers in the classroom. Because of this powerful attitude influence, teachers may decide whether or not to employ technology in the classroom (Lamb, 2011).

The attitudes people have toward technology are the convictions they have and the experiences they have, which influence how they utilize it. It can also be described as the elements that identify, categorize, and characterize the organization and content of the mental states believed to direct a person's behavior and to anticipate how they will utilize technology (Morey, 2020). The decisions teachers make in the classroom about the use of technology in teaching and learning procedures are influenced by their attitudes toward technology (Hobbs & Tuzel, 2017).

Technology itself, the use of it, how it is administered, the setting in which it is implemented, and faculty dynamics are important players in whether or not a teacher will choose to use technology in their classrooms. These elements can all have an impact on teachers' attitudes about technology. These elements, both separately and collectively, have a significant impact on how educators view technology. The various aspects of technology adoption that educators encounter, including as training, hardware/software support, and upgrades, might affect how positively or negatively they see the newly adopted technology (Reid, 2017). This was also noted by Ata and Yıldırım (2019) who found that one of the issues related to teacher attitudes towards the use of digital technologies was having the necessary active teaching strategies to incorporate it into their teaching and learning practices.

Whether or not teachers decide to employ educational technology for their own and their students' benefit is heavily influenced by their attitude toward it. The way a teacher feels about technology can be influenced by a number of different things. Individual and personal preferences, convictions, and comfort levels with how pedagogy, material, and technology are combined are the most prevalent of these aspects (Reid, 2017). Also, instructors' attitudes about using technology are enhanced and improved by their impressions of participating in online learning activities and their abilities to do so in the classroom (Morey, 2020).

Subjective Norms. This speaks to the perceived societal pressure to engage in the conduct or refrain from doing so. A subjective norm is a conviction on the demands of significant others and what drives or produces perceived social pressure (Lamb, 2011). A person's perception of what the majority of people who value them believe they should or should not do is known as their subjective norm (Davood, Akbarpour & Hadipour, 2020).

While conducive conditions had a little impact, teachers' subjective norms had a big impact on students' behavioral intents to utilize technology (Miles-Wright, 2018). Teachers are being influenced by subjective norms to conform to predetermined behaviors and viewpoints (Perera, et.al., 2020). Also, a person's desire to engage in social activities like belonging to a social group is influenced by their attitude and behavior, which are ingrained in the subjective norms (Bellucci et al., 2018).

Moreover, the subjective norm is a key factor in decision-making and a precursor to the acceptance of technology. Furthermore, early in the adoption process, when users of new technology have little to no firsthand experience with it, subjective norm tends to be more significant. Potential users are more inclined to look to their social surroundings for evaluative information and indications when there are few other sources from which they might acquire assistance. So, subjective norms may be significant in the context of our research (Lee, 2010).

Perceived Behavioral Control. Control views regarding the existence of elements that might help or hinder the performance of the activity when employing technology are meant by this (Lamb, 2011). The extent to which a person can access software and hardware, technical support, and computer self-efficacy is referred to as perceived behavioral control. Resources, time, and training are a few examples of potential impediments or barriers. It is also the perceived ease or difficulty of carrying out the behavior, and this perception is thought to reflect prior experience.

Perceived behavioral control, according to Alazemi (2017), is the belief that one is able to carry out a particular behavior or not. Self-efficacy and facilitative factors, such as the accessibility of resources and technology, can be divided into two categories when analyzing perceived behavioral control. Additionally, the Sadaf et al. (2012) study's perceived behavioral control revealed that perception of behavior significantly influenced behavioral intention (Alazemi, 2017).

When forecasting how people will behave when using technologies, perceived behavioral control is a key aspect. The intention to employ technologies is positively and strongly influenced by perceived behavioral control. The intentions of preservice teachers to use technology are positively and significantly influenced by perceived behavioral control (Alazemi, 2017).

An individual's propensity to engage in particular activities is influenced by perceived behavioral control and control beliefs, which depend on a variety of factors, such as the accessibility of resources or opportunities (Yu et al., 2021). Moreover, perceived behavior is defined as the person's perception of control over the outcomes or their capacity to engage in an action. It is the control that had an impact on the person's decision to engage in a behavior up until it was actually carried out (Kissick, 2019).

Principal Digital Leadership and Technology Integration of Teachers

Technology has changed our lives. Driven by a global trend of digitalization, the fashion of digital learning has been transforming. In an era with advanced information technology, technology products have made a significant impact on school operations, teachers' teaching, and students' learning, and a school leader's technology literacy is progressively valued and emphasized. Hallinger and Heck (2010) pointed out that school leadership may affect students' learning outcomes. The leadership of a school principal has the power of continuously enhancing the quality of education, the development of a school and students' learning. Furthermore, the leadership of a school principal could boost teachers' teaching skills, improve the way of learning, and make a positive impact on students' learning. A school leader should actively introduce resources to school, boost students' willingness to learn and teachers' teaching in the process of teaching. The integration of supporting education technology may be utilized to assist teaching successfully.

School leaders have the responsibility to encourage and support teachers to integrate technology in learning and to teach especially when the internet is rapidly making its way into classrooms in ways never before imagined. With smart whiteboards and alternative interactive digital media being widely utilized during interactive learning in classrooms, school leaders have to keep abreast with the new technologies. Thus, school leadership preparatory training should include technology to produce future-ready school principals who can lead teachers and students, as learning experiences become virtual and ubiquitous (Aldowah et al., 2017; Esplin, 2017). Moreover, it is the ultimate goal of school technology leaders to propel learning and teaching forward toward student achievement.

Technology 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.

Principals who create school vision for effective technology integration and provide continuous professional development had been observed to be most effective in influencing teacher's integrating technology in the classroom (Kurland, Peretz, Hertz-Lazarowitz, 2010). This finding is in line with Chang (2012) who conducted a study of 1,000 principals in Taiwan and found that principal's leadership improved teacher's literacy and directly influenced teachers to integrate technology into teaching.

The role of principals should change from traditional school administrators to technology and curricula leaders (Chang, 2012). In addition, Peled, Kali and Dori (2011) suggested that the characteristics and support of principals can alter the behaviour of Science teachers as it enhances or reduces the use of technology in the classroom according to the support received from the principal.

In the Malaysian context, school leaders, precisely principals and teachers have to transform themselves as the Industrial Revolution 4.0 is pushing for the current education system to be revamped in line with the government's new policy, namely the Malaysia Education Blueprint 2013-2025 (Ministry of Education, 2013). Malaysian school leaders and teachers should be prepared to take on the challenge by equipping themselves with the latest

Information and Communication Technology (ICT) skills. Principals are required to act as technology leaders and teachers as facilitators, to provide the skills and knowledge for the 21st century education (Roblyer & Doering, 2014).

A principal's responsibility is becoming even more challenging as schools need not only to produce skilled and creative workforce to meet the demands of the Digital Economy but rather reengineer the way students think in a constantly transforming era. Therefore, principals should possess enough ICT skills and knowledge to guide, motivate and spearhead initiatives for teachers to integrate technology in the classroom, in line with the seventh shift of the Malaysia Education Blueprint (2013-2025) (MOE, 2013) which has now entered the second wave (2016-2020).

Many studies related to the use of technology in secondary schools (Hamid, Nordin & Attan, 2014) agreed that principals play a key role in the use of ICT in the classroom. Additionally, studies such as by Richardson and McLeod (2011), Wang (2010), Badri, Alnuaimi, Mohaidat, Yang, and Al Rashedi (2016), and Evers, Van der Heijden, and Kreijns (2016) suggested that professional development should be further examined. Principals' leadership has an impact on the integration of educational technology, which in turn has a positive impact on student achievement improvement.

Synthesis

The compiled relevant literature and studies firmly substantiated the relationship of the variables in this study. It also offered varied inputs for each variable. It is presented in this section that principal digital leadership is connected to technology integration as supported by several studies. The presentations and discussions of related studies presented significant information which would be valuable in the professional discussion of the findings of the study and in the sound formation of the recommendations.

Theoretical and Conceptual Framework

This study was mainly anchored on the Technology Leadership Model proposed by Anderson and Dexter (2005) which emphasized about technology leadership. According to Anderson and Dexter (2005), technology leadership comprises of all activities related to technology in school, including organizations' decisions, policies, and technology implementation. This model explains the two-way relationship between technology leadership and school infrastructure. The increase of internet usage, technology integration, and usage of technology tools by students would demand strong technology leadership.

As the leader of a school, a school principal should be literate in information technology so that school staff can also make good use of technology in teaching, create a teaching environment which facilitates students' motivation to learn, and achieve the goal of being a highly-acclaimed school. The above statement has expounded on the importance of principal technology leadership. Ray (1992) pointed out that exceptional technology leadership calls for excellent people skills, communication skills, and technology skills.

Bailey (1997) mentioned that a school leader should make use of leadership skills to assist an organization to utilize fast-changing technology for a good cause. Anderson and Dexter (2005) suggested that technology leadership refers to a school's more effective use of information technology in decision-making, policy-making, and actions. Principal technology leadership can facilitate changes in a school as well as incorporate and utilize diverse solutions in learning, teaching, and school administration (Afshari, Bakar, Luan, Samah, & Fooi, 2008).

Schmeltzer(2001) further pointed out that a technology leader has to know how to use technology to improve teaching, develop strategies to help teachers incorporate technology into teaching, as well as form a technology team and a support system to continuously promote an entire organization's use of new technology. Creighton (2003) proposed that a school principal's important tasks include planning and carrying out innovative technology strategies, assist teachers to perceive and understand the importance of teaching and technology, and integrate technology into curriculum and teaching in order to improve the effectiveness of teaching.

Hsieh and Hsiao (2013) believed that a school principal should possess information technology literacy, the ability to integrate resources, and the ability to visualize a future scene of technology in a well-planned manner. In addition, a school principal has to utilize leadership skills to encourage school teachers and non-teaching staff to undergo training in order to have better information technology skills, develop skills in applying technology in administration and teaching, create a communal and supportive school environment, and bring school administration, teaching, and students' learning and performance to the best possible status. Flanagan and Jacobson (2003) pointed out that effective technology leadership can positively facilitate students' learning and prompt a school's technology renovation projects.

According to a study of Chang (2012), principal technology leadership could enhance teachers' technology literary and directly encourage teachers to incorporate technology with teaching while teachers' technology literacy has a direct impact on the effectiveness of teaching. With respect of measurable sub-dimensions of principal technology leadership, we segment principal technology leadership into five sub-dimensions: "vision, plan, and management", "member development and training", "support of technology and basic infrastructure", "assessment and research", "interpersonal relationship and communication skill" after studying and systemizing relevant research (Chin & Chang, 2006; Chang & Wu, 2008; Hsieh & Hsiao, 2013).

Figure 1 shows the conceptual model of the study. It focuses on the extent of principal digital leadership and technology integration. The independent variable is principal digital leadership. It has six observed variables specifically leadership and vision, learning and teaching, productivity and professional practice, support management and operations, assessment and evaluation, and social, legal, and ethical issues (Brunson, 2015). In this study, leadership and vision which refers to a clear and well-communicated vision is essential for a leader to gain support and for followers to understand a leader's

goals. Learning and teaching refers to the capacity of the school leaders to learn and teach the intricacies of ICT. Productivity and professional practice refer to the use technology resources to engage in ongoing professional development and

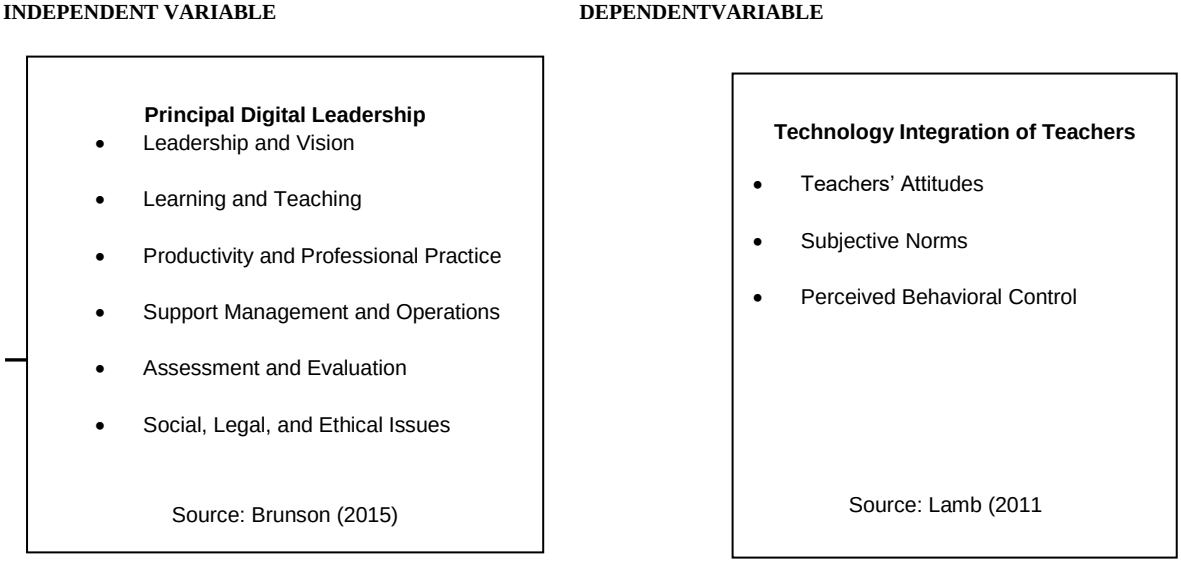

Figure 1. The Conceptual Framework of the Study

lifelong learning. Support management and operations refers to the initiative of school leaders to intensify the use of ICT. Assessment and evaluation refers to the initiative of school leaders in continuously improving the use of ICT by means of having constant monitoring and feedback. Social, legal, and ethical issues refers to the initiative of school leaders in promoting the use of technology.

Meanwhile, the dependent variable is technology integration which has three variables. These are teachers' attitudes, subjective norms, and perceived behavioral control (Lamb, 2011). In this study, teachers' attitudes refer to the beliefs held and experiences had by individuals that contribute to their use of technology. Subjective norms are beliefs about the expectations of important others and motivation or results in perceived social pressure. Perceived behavioral control refers to control beliefs about the presence of factors that may facilitate or impede the performance of the behavior in using technology.

Statement of the Problem

This study determined the relationship between principal digital leadership and technology integration of teachers in selected public elementary schools in Davao del Norte Division. More specifically, it sought to answer the following questions:

1. 1. What is the extent of principal digital leadership as perceived by the public elementary teachers of Davao City Division in terms of:

    1.1 leadership and vision;

    1.2 learning and teaching;

    1.3 productivity and professional practice;

    1.4 support management and operations;

    1.5 assessment and evaluation; and

    1.6 social, legal and ethical issues?

2. What is the extent of technology integration among elementary teachers in terms of:

    2.1 teachers' attitudes;

    2.2 subjective norms; and

    2.3 perceived behavioral control?

3. Is there a significant relationship between principal digital leadership and technology integration of teachers?

4. Which domains of principal digital leadership significantly influence technology integration of teachers?

Hypothesis

The null hypotheses were tested at 0.05 level of significance:

Ho1. There is no significant relationship between principal digital leadership and technology integration.

Ho2. None of the domains of principal digital leadership significantly influence technology integration.

This study may give additional insights into the technology integration of elementary teachers in the international and local setting. In this undertaking, technology integration is believed to have been impacted by the principal technology leadership. Hence, it is vital for the teachers to maintain their positive technology integration despite the pandemic that brought too much tension, worry, and anxiety to everyone in the community. With this, principal technology leadership should be strengthened.

In the educational setting, this study shall provide benefit to relevant institutions, namely: school administration and teachers, policymakers, and researchers. These would help the beneficiaries to create policies, programs, interventions, and projects that pave the way to the attainment of successful technology integration.

DepEd Officials. This undertaking may give ideas to the policymakers to craft long-term programs, projects, interventions, and activities that may help teachers attain a very interactive classroom through the integration of technologies with the intervention of the principal.

School Administration. This study would serve as a guide to school leaders on how to concretize programs, projects, and interventions that would be beneficial to teachers. This would help them to come up with school activities or webinars that would reinforce teachers' literacy in integrating technologies in teaching.

Teachers. This study would serve as an awakening for teachers that the status of their knowledge of technologies is also one of their responsibilities. Teachers need to realize that they are key players in attaining an interactive classroom through the use of technologies.

Students. This study would serve as an understanding of what makes the learning of specific concepts easy or difficult. In addition, it helps the students to effectively learn the broad subjects and be technologically oriented leading to have attained the 21st century skills.

Future Researchers. This undertaking may serve as a prototype model for future researchers. Also, future researchers may explore other factors relevant to well-being which has not been explored in this current study.

Important terms are being defined conceptually and operationally in order to provide a clear view of the content of this study.

Principal Technology Leadership. It is a leadership wherein the principal exerts on technology integration into the teaching and learning process (Office of Educational Technology, 2010). In this study, it refers to leadership and vision, learning and teaching, productivity and professional practice, support management and operations, assessment and evaluation, and social, legal, and ethical issues (Brunson, 2015).

Technology Integration. It is an integral component because of its supporting role in helping instructors to engage learners in active learning and to enrich learners' experiences in academic programs (Richardson, Beck, LaFrance, & McLeod, 2016). This study, refers to teacher's attitudes, subjective norms, and perceived behavioral control.

2. Method

This chapter introduces the methodological aspect of the study. This covers the research design, research respondents, research instruments, data gathering procedure and data analysis which were employed on this investigation.

Research Design

This study was a quantitative research approach utilizing the descriptive correlational approach. Quantitative research is the process of collecting and analyzing numerical data. It can be used to find patterns and averages, make predictions, test causal relationships, and generalize results to wider populations. (Bhandari, 2022). It is the opposite of qualitative research, which involves collecting and analyzing non-numerical data. Moreover, a descriptive correlation study is a study in which the researcher is primarily interested in describing the relationships between variables without attempting to establish a causal relationship (Noah, 2021).

Meanwhile, descriptive research aims to accurately and systematically describe a population, situation or phenomenon. It can answer what, where, when and how questions, but not why questions. A descriptive research design can use a wide variety of research methods to investigate one or more variables (McCombes, 2022). On the other hand, correlational research design explores and measures the relationship between the variables of the study with no attempt of manipulating them. Also, correlation investigates the strength and direction of the variables. This can be a positive direction or a negative direction, and a strong and a weak relationship (Bhandari, 2023).

This research journey was considered as quantitative since it relied on statistical figures when analyzing and interpreting the data. It was descriptive since its purpose was to determine the extent of principal digital leadership and technology integration. In addition, this academic pursuit was correlational since its purpose was to measure the connection between principal digital leadership and technology integration of public elementary teachers in the Division of Davao del Norte.

Research Respondents

This study catered the 115 public elementary teachers in the Division of Davao del Norte. Hair et al. (2018) claimed that 50 to 100 samples were enough when testing the Regression Analysis. Hence, the 115 respondents were more than enough to address the purpose of this study.

Probability sampling specifically two-staged cluster sampling was used to identify the sample of the study. It is a kind of sampling technique in which the likelihood or probability of each piece being included may be defined. In other words, every member of the population must have an equal and independent probability of being included in the sample (Ragab & Arisha, 2018). Cluster sampling is a popular method in conducting researches wherein the population is being divided into different clusters. A cluster is a group of elements that are made up of individual units that represent mutually exclusive and exhaustive subsets (Thomas, 2020). It is two-staged cluster sampling since the sample of elements from each selected cluster or division is chosen randomly. In the context of the study, all elementary teachers from the public elementary schools in Davao del Norte Division were considered.

In the inclusion and exclusion criteria, elementary teachers with 2 years teaching experience in the public were chosen in this endeavor since their 2 years of teaching as a public servant would help them to assess the extent of the principal digital leadership and their technology integration. Respondents who felt awkward and uncomfortable in answering the survey questionnaire were free to withdraw from their participation. They were not forced to be part of the study. Their decision to withdraw was respected. Apparently, the respondents' welfare was given utmost importance in the conduct of the study.

Research Instruments

In collecting data, this study utilized an adapted survey questionnaire. The questionnaire that was employed in this undertaking was divided into two sets. The first set was focusing on principal digital leadership while the second set was about technology integration.

Principal Digital Leadership. The questionnaire on principal digital leadership was adapted from Brunson (2015). It was subjected to pilot testing which revealed a result of .74, suggesting that the items have relatively *high* internal consistency. It is composed of six indicators, namely: leadership and vision (1-5), learning and teaching (6-10), productivity and professional practice (11-15), support management and operations (16-20), assessment and evaluation (21-25), and social, legal and ethical issues (26-30). Below were the scales used to interpret the means of principal digital leadership.

Mean Interval	**Descriptive Level**	**Descriptive Interpretation**
4.20-5.00	Very Extensive	The digital leadership among school principals is always evident.
3.40-4.19	Extensive	The digital leadership among school principals is oftentimes evident.
2.60-3.39	Moderately Extensive	The digital leadership among school principals is occasionally evident.
1.80-2.59	Less Extensive	The digital leadership among school principals is seldom evident.
1.00-1.79	Not Extensive	The digital leadership among school principals is never evident.

Technology Integration. The questionnaire on technology integration of teachers was a standardized instrument downloaded from the internet and adapted from Lamb (2011). It has total items of 33. It is divided into 3 subscales namely; teacher's attitudes which have 11 items, subjective norms with 11 items, and 11 items for perceived behavioral control. Below were the scales which was used to interpret the technology integration of elementary school teachers:

Mean Interval	**Descriptive Level**	**Descriptive Interpretation**
4.20-5.00	Very Extensive	This indicates the technology integration of teachers is always evident.
3.40-4.19	Extensive	This indicates the technology integration of teachers is oftentimes evident.
2.60-3.39	Moderately Extensive	This indicates the technology integration of teachers is occasionally evident.
1.80-2.59	Less Extensive	This indicates the technology integration of teachers is seldom evident.
1.00-1.79	Not Extensive	This indicates the technology integration of teachers is never evident.

The instrument in this study was contextualized to achieve the purpose of this study. In administering the pilot testing, it was conducted in the school where the researcher is currently employed. More so, the researcher integrated all the comments and suggestions of the adviser, panel members and expert validators for the refinement of the tools and to achieve construct validity.

Data Gathering Procedure

In gathering the data, the researcher followed a strict procedure and protocol.

1. *Permission to conduct the study*. After seeking approval to the Dean of Graduate Studies, the researcher asked permission and endorsement from the Department of Education Region XI. After the approval, a request letter was submitted to the office of the Schools Division Superintendents. Upon approval, an endorsement letter was submitted to the School Head.
2. *Distribution and Retrieval of the Questionnaire.* After which, a schedule was made for the distribution of the survey questionnaire. After explaining the rationale of the study, the researcher personally administered the survey questionnaire with observance to health and safety protocols. Respondents were given one hour to answer the survey. Retrieval of the respondents' responses was automatically recorded and generated in the form.
3. *Collation and Statistical Treatment of Data.* All the data gathered were tallied, tabulated, analyzed and interpreted confidentially and accordingly.

Data Analysis

For more comprehensive interpretation and analysis of the data, the following statistical tools were utilized.

Mean. This was used to measure the extent of principal digital leadership and technology integration.

Pearson r. This was utilized to determine the relationships between principal digital leadership and technology integration.

Regression Analysis. This was employed to determine the domains of principal digital leadership that significantly influence technology integration.

3. Results and Discussion

This chapter presents the results of the study. These are the findings of the problems raised in the previous chapter. They are presented both in the textual and tabular forms.

Extent of Principal Digital Leadership in terms of Leadership and Vision

Table 1 reflects the principal technology leadership in terms of leadership and vision. It shows that the overall mean is 4.24, in a very extensive level. This means that the principal digital leadership in terms of leadership and vision is always evident.

It can be gleaned from the data that all 5 statements reveal a very extensive result. Of which, the three (3) items which have the highest mean score are as follows: comparing and aligning our school technology plan with other plans, including district strategic plans, school improvement plans and other instructional plans (4.26), communicating information about our districts or school's technology planning and implementation efforts to our schools stakeholders (4.25), and advocating for inclusion of research-based technology practices in our school improvement plan (4.24). These items prove that the principal digital leadership in terms of leadership and vision is always evident.

The findings of this study imply that school heads are showcasing their digital leadership skills which are reflected in their leadership and vision. As

Table 1. Extent of Principal Digital Leadership in terms of Leadership and Vision

No	Leadership and Vision	Mean	Descriptive Equivalent
1	participating in district or school's most recent technology planning session.	4.20	Very Extensive
2	communicating information about our districts or school's technology planning and implementation efforts to our schools' stakeholders.	4.25	Very Extensive
3	promoting participation of our stakeholders in the technology planning process of our school.	4.23	Very Extensive
4	comparing and aligns our school technology plan with other plans, including district strategic plans, school improvement plans and other instructional plans.	4.26	Very Extensive
5	advocating for inclusion of research-based technology practices in our school improvement plan.	4.24	Very Extensive
	Overall	**4.24**	**Very Extensive**

manifested from their actions, school heads aligning the school's technology plan to other school initiatives which are beneficials to the school. More so, school heads are taking relevant information that could be of help to school's technological planning and implementation efforts. They also encourage their teachers to be technologically equipped by being exposed to research-based technology practices.

The result is aligned to the statement of Zhong (2017) claiming that to be more effective instructional leaders, principals must have a vision for integrating technology. They must be dedicated to utilizing technology effectively in order to achieve this aim. Perkins-Jacobs (2015) reinforced that in order to lead

in a technologically advanced educational setting, school directors must possess certain technological abilities. Richardson et al (2013) clarified that with these technological developments, it is crucial for a school's leadership to have a clear vision.

The findings also validated the beliefs of Hero (2020) highlighted that principals should have the ability to be technology know-how leaders and advocates given current trends in 21st-century education where technology infusion is highlighted as one of its key aspects. Beytekin (2014) pointed out that the principals, who serve as the school's technological leaders, supposedly need to be familiar with the objectives and requirements of educational technology. They must be able to create staff development initiatives for instructors and comprehend the advantages of how technology should be used into the classroom.

Extent of Principal Digital Leadership in terms of Learning and Teaching

Table 2 reflects the extent of principal digital leadership in terms of learning and teaching. It shows that the overall mean is 4.17, in an extensive level. This means that the principal digital leadership in terms of learning and teaching is oftentimes evident.

As can be gleaned from the data, all 5 statements reveal an extensive result. Of which, the three (3) items which have the highest mean score are as follows: disseminating or models best practices in learning and teaching with technology to faculty and staff (4.19), organizing or conducts assessments of staff needs related to professional development on the use of technology (4.18), and providing support to teachers and staff who are attempting to share information about technology practices, issues, and concerns (4.17). These items prove that principal technology leadership in terms of learning and teaching is oftentimes evident.

Table 2. Extent of Principal Digital Leadership in terms of Learning and Teaching

No	Learning and Teaching	Mean	Descriptive Equivalent
1	engaging in activities to identify the best practices in the use of technology.	4.16	Extensive
2	disseminating or models best practices in learning and teaching with technology to faculty and staff	4.19	Extensive
3	providing support to teachers and staff who are attempting to share information about technology practices, issues, and concerns.	4.17	Extensive
4	organizing or conducts assessments of staff needs related to professional development on the use of technology.	4.18	Extensive
5	facilitating or ensures the delivery of professional development on the use of technology to faculty and staff.	4.16	Extensive
Overall		**4.17**	**Extensive**

The findings of the study simply suggest that school heads are present in the school operation that concerns the improvement of teaching-learning process. This is oftentimes true in intensifying technology at school. In doing so, school heads are relaying information to their teachers about the best practices that teachers may utilize in the school and in the classroom. School heads are also making an effort to evaluate the technological skills of their teachers for further development. Apart from that, school heads are extending their all out support to their teachers who have plans to relay information regarding technology practices, issues, and concerns (4.17).

The findings substantiated the notion of Thompson (2021) stressing that technology leaders should be principals who can integrate new technology in their schools. The usage of technology on campus can be shaped by school administrators so that there is a consistent strategy used throughout the institution, improving student outcomes. Being a technology leader enables school leaders to center the mission and vision of their institution around technology. It provides students with hints about how their teachers and staff are using technology in the classrooms.

Furthermore, Hatlevik and Arnseth (2012) elaborated that in order to foster innovative uses of ICT in education and to help teachers adopt positive attitudes toward them, the significance of clear leadership must be highlighted. A key component of the successful use of ICT in schools is school leadership. By creating a positive working atmosphere, crystal-clear visions, and high-quality infrastructure, effective leadership can support the development of digital literacy in students. Helping teachers complete professional development linked to using ICT in the classroom is a crucial aspect of ICT leadership.

Extent of Principal Digital Leadership in terms of Productivity and Professional Practice

Table 3 exhibits the extent of principal digital leadership in terms of productivity and professional practice. It shows that the overall mean is 4.27, in a very extensive level. This means that the extent of principal digital leadership in terms of productivity and professional practice is always evident.

It is reflected in the data that all 5 statements reveal a very extensive result. Of which, the four (4) items which have the highest mean score are as

Table 3. Extent of Principal Digital Leadership in terms of Productivity and Professional Practice

No	Productivity and Professional Practice	Mean	Descriptive Equivalent
1	participating in professional development activities meant to improve or expand the use of technology.	4.25	Very Extensive
2	believing that professional development in technology meet his/her needs as a school leader.	4.28	Very Extensive
3	believing that professional development in technology provides opportunities for discussion about the district or school's vision for digital-age learning and teaching.	4.27	Very Extensive
4	encouraging and uses technology (e-mails, blogs, and videoconference) as a means of communicating with educational stakeholders, including peers, experts, students, parents/guardians, and the community.	4.29	Very Extensive
5	modeling the routine, purposeful, and effective use of technology.	4.26	Very Extensive
Overall		**4.27**	**Very Extensive**

follows: encouraging and using technology (e-mails, blogs, and videoconference) as a means of communicating with educational stakeholders, including peers, experts, students, parents/guardians, and the community (4.29), believing that professional development in technology meet his/her needs as a school leader (4.28), and believing that professional development in technology provides opportunities for discussion about the district or school's vision for digital-age learning and teaching (4.27). These items prove that the principal digital leadership in terms of productivity and professional practice is always evident.

The result of the study signifies that school heads are not only good in making visions and planning about intensifying technology at school. In fact, they find means to fully equipped everyone at school with technological skills. With that, school heads are encouraging all members of the school community to use technology as means of communicating or reaching out all their internal and external stakeholders. They also believe that empowering themselves of the technological leadership and skills would help them to be responsive to school's demands and needs. More so, school heads are very much welcome to discuss with the other districts the means of strengthening the use of technology at school.

The results of the study affirmed the claim of Machado and Chung (2015) underscoring that principals must think that effective technology integration raises student achievement if they are to allocate cash for technological resources, build a vision for technology integration, and push for adequate teacher professional development. It was thought that schools with principals who had undergone training in technology integration had greater success with the use of technology than schools with administrators who had not.

As emphasized by Jackson and Marriott (2012), the pedagogical use of technology in schools is closely related to the leadership of the school. It has been discovered that school leadership for ICT is crucial for motivating teachers to use ICT in their classrooms in novel ways. Providing the appropriate infrastructure, a positive work atmosphere, as well as clear goals and aspirations for the pedagogical use of ICT, school leadership for ICT is also essential to fostering the development of digitally competent students. The need for school leaders to supervise, counsel, and implement professional development initiatives when necessary in the teachers' pedagogical practice is indicated by pedagogical leadership. Setting a direction for educational practices and assessment using ICT should use pedagogical leadership for ICT (Ottestad, 2013).

Extent of Principal Digital Leadership in terms of Support, Management, and Operations

Table 4 reflects the extent of principal digital leadership in terms of support, management, and operations. It shows that the overall mean is 4.17, in an extensive level. This means that the principal digital leadership in terms of support, management, and operations is oftentimes evident.

As can be gleaned from the data, all 5 statements reveal an extensive result. Of which, the three (3) items which have the highest mean score are as follows: ensuring the hardware and software replacement/upgrades are incorporated into school technology plans (4.19), implementing procedures to drive continuous improvements of technology systems and to support technology replacements cycles (4.18), and integrating strategic plans, technology plans and other improvement plans to align efforts and leverage resources (4.17). These items prove that the principal digital leadership in terms of support, management, and operations is oftentimes evident.

The findings of the study simply indicate that school heads oftentimes extend support to all school member who make an effort to intensify the use of technology for school welfare and well-being. By means of extending support, school heads oftentimes make an effort to upgrade the existing hardware and software that are found at school. They make plans on how to upgrade and improve the school's technology systems and to support technology

Table 4. Principal Digital Leadership in terms of Support, Management, and Operations

No	Support, Management, and Operations	Mean	Descriptive Equivalent
1	allocating campus discretionary funds to help meet the school's technology needs.	4.15	Extensive
2	ensuring the hardware and software replacement/upgrades are incorporated into school technology plans.	4.19	Extensive
3	advocating at the district level for adequate, timely, and high quality technology support services.	4.16	Extensive
4	integrating strategic plans, technology plans and other improvement plans to align efforts and leverage resources.	4.17	Extensive
5	implementing procedures to drive continuous improvements of technology systems and to support technology replacements cycles.	4.18	Extensive
Overall		**4.17**	**Extensive**

replacements cycles. They also assess their resources and how they could meet their strategic plans, technology plans and other improvement plans.

The results validated the concept of Polizzi (2011) claiming that principals' support for ICT integration practices depends on both contextual-level and personal factors. The amount of ICT equipment that teachers have access to in their school, teachers' skill levels and usage patterns, and teachers' attitudes toward using ICT are all examples of contextual variables. Principals' views toward using ICT in the classroom, their exposure to ICT training programs, and their own assessments of their own ICT proficiency are all personal-level variables.

Furthermore, Panganiban and Flores (2021) cited that the principal's responsibilities as the school's technology leader include establishing the vision and goals for technology in the school, carrying the technology banner in the school, modeling technology use, supporting technology use in the school, participating in professional advancement initiatives that concentrate on technology, integrating technology in student learning activities, and providing opportunities for professional growth. All school improvement initiatives, including those that are technological in nature, are expected to be led by school administrators. So, they carry out this responsibility in their roles as technology leaders.

Extent of Principal Digital Leadership in terms of Assessment and Evaluation

Table 5 exhibits the extent of principal digital leadership in terms of assessment and evaluation. It shows that the overall mean is 4.28, in a very extensive level. This means that the extent of principal digital leadership in terms of assessment and evaluation is always evident.

It is reflected in the data that all 5 statements reveal a very extensive result. Of which, the three (3) items which have the highest mean score are as follows: monitoring technology use to support learning and teaching through formal/informal observations and/or walk-throughs (4.30), including the effective use of technology as a criterion for assessing the performance of faculty (4.29), and evaluating the effectiveness of professional development offerings in the school to meet the needs of teachers and their use of technology (4.28).These items prove that the principal digital leadership in terms of assessment and evaluation is always evident.

The result of the study indicates that school heads are always extending

Table 5. Extent of Principal Digital Leadership in terms of Assessment and Evaluation

No	Assessment and Evaluation	Mean	Descriptive Equivalent
1	promoting the evaluation of instructional practices, including technology-based practices to assess their effectiveness.	4.25	Very Extensive
2	evaluating the effectiveness of professional development offerings in the school to meet the needs of teachers and their use of technology.	4.28	Very Extensive
3	including the effective use of technology as a criterion for assessing the performance of faculty.	4.29	Very Extensive
4	monitoring technology use to support learning and teaching through formal/informal observations and/or walk-throughs	4.30	Very Extensive
5	evaluating the school's technology plan to determine whether goals and benchmarks are being met.	4.27	Very Extensive
Overall		**4.28**	**Very Extensive**

their effort and time to assess and monitor the current situation of technology at school as part of their digital leadership skills. In doing so, they evaluate the use of technology at school by conducting forma and informal observations and walk-throughs. They also evaluate if teachers are performing well in the use of technology by setting criteria. More so, school heads are also assessing if the conducted professional developments have been effective in improving the teaching craft of teaches considering the use of technology.

The results of the study substantiated the viewpoint of Brunson (2015) citing that the efficiency of professional development programs offered by the school to support teachers' needs and their usage of technology is assessed by school administrators. They utilize it as a criterion for rating the effectiveness of faculty members' usage of technology. Via formal or informal observations and/or walk-throughs, they keep an eye on how technology is used to assist teaching and learning. They assess the school's IT strategy as well to see if objectives and benchmarks are being reached.

As underscored by Marshall et al. (2011), modifications to teaching methods enhanced student performance and emphasized the necessity of assessing and changing instructional strategies to address problems with both students and teachers. According to Schrum et al. (2011), school administrators with technological skills are better able to integrate the use of technology in the classroom. Making better technology purchasing decisions and more effective use of technology in the classroom could result from improving technology leadership (Quidasol, 2022).

Extent of Principal Digital Leadership in terms of Social, Legal and Ethical Issues

Table 6 exhibits the extent of principal digital leadership in terms of social, legal and ethical issues. It shows that the overall mean is 4.16, in an extensive level. This means that the extent of principal digital leadership in terms of social, legal and ethical issues is oftentimes evident.

It is reflected in the data that all 5 statements reveal an extensive result. Of which, the three (3) items which have the highest mean score are as follows: implementing policies and programs meant to raise the awareness of technology-related social, ethical, and legal issues for staff and students (4.18), identifying, communicates, models, and enforces social, legal, and ethical practices to promote responsible use of technology (4.17), and promoting and enforces environmentally safe and healthy practices in the use of technology (4.16).These

Table 6. Extent of Principal Digital Leadership in terms of Social, Legal and Ethical Issues

No	Social, Legal and Ethical Issues	Mean	Descriptive Equivalent
1	working to ensure equity of technology access and use in our school	4.15	Extensive
2	implementing policies and programs meant to raise the awareness of technology-related social, ethical, and legal issues for staff and students.	4.18	Extensive
3	identifying, communicates, models, and enforces social, legal, and ethical practices to promote responsible use of technology.	4.17	Extensive
4	promoting and enforces privacy, security, and online safety related to the use of technology.	4.14	Extensive
5	promoting and enforces environmentally safe and healthy practices in the use of technology.	4.16	Extensive
Overall		**4.16**	**Extensive**

items prove that the principal digital leadership in terms of social, legal and ethical issues is oftentimes evident.

The result of the study signifies that school heads are not only encouraging the members of the school community in utilizing technology but also informing them the social, legal, and ethical issues that everyone needs to consider. All members need to be responsible in using technology. With this, school heads sometimes implement policies and programs that would serve as guide for teachers and students in using technology. They create a model or intervention that promotes the responsible use of technology. School heads also ensure that everyone is fully aware of the safety precautions when using technology.

The results of the study substantiated the ideas of Garland (2010) emphasizing that with an understanding of the diversity of students in terms of ethnicity, language, special needs, and gender, principals must fight for equity and access to new technologies in their schools. The educational leader can address the challenges of using developing technologies by bridging the "digital divide" gap, advocating safe internet use policies, abiding by copyright laws, and guaranteeing environmentally sound practices.

As highlighted by Betz (2011), ICT deployment in schools would be successful if school leaders supported, learned, provided modern infrastructure, sufficient professional development, and support personnel during its implementation. It is the duty of school administrators to oversee the implementation of ICT initiatives in their institutions. In addition to the importance of ICT infrastructure in schools, Anderson and Dexter's (2010) study on the technology leadership behaviors of school principals found that school leadership was the most critical determinant of how successfully ICT was implemented in schools.

Summary on the Extent of Principal Digital Leadership

Table 7 provides the summary on the extent of principal digital leadership. It is exhibited that the overall mean of principal digital leadership is 4.22, which is in a very extensive level. This means that principal technology leadership is always evident.

Data show that the six (6) indicators have varying results ranging from extensive to very extensive level. As arranged chronologically, assessment and evaluation (4.28) has the highest mean. This is followed by productivity and professional practice (4.27), leadership and vision (4.24), learning and teaching (4.17), support, management, and operations (4.17), and social, legal and ethical

Table 7. Summary on the Principal Digital Leadership

No	Indicators	Mean	Descriptive Equivalent
1	Leadership and Vision	4.24	Very Extensive
2	Learning and Teaching	4.17	Extensive
3	Productivity and Professional Practice	4.27	Very Extensive
4	Support, Management, and Operations	4.17	Extensive
5	Assessment and Evaluation	4.28	Very Extensive
6	Social, Legal and Ethical Issues	4.16	Extensive
Overall		**4.22**	**Very Extensive**

issues (4.16).

With the very extensive principal digital leadership, this conformed the widely held belief of Hero (2020) citing that a principal must encourage his teachers to adopt and integrate technology into the classroom and to develop their knowledge and expertise in this area. Since technology is pervasive and one of the fastest-growing industries in modern society, it is essential for principals to adopt and use technological advancements. Because of this, the new tasks of principals might include finding new technologies, setting up computer laboratories, educating teachers on how to effectively incorporate ICT into the curriculum, and enhancing their leadership skills in technology integration.

Similarly, Shyr (2017) elaborated that the necessity to develop a technology use plan in support of instructional goals and school objectives should be understood by principals. In terms of innovation in the classroom and its effect on student learning, principals should be powerful visionaries who are also familiar with pedagogical principles. Technology utilization has the potential to either significantly accelerate change or result in the waste of precious resources. The principals are responsible for choosing wisely. Computer teachers, who play a crucial role in integrating technologies in the classroom, and school administrators, who are primarily responsible for technology integration in schools, must both have a keen interest in and a highly positive attitude toward technology integration.

Extent of Technology Integration in terms of Teacher's Attitudes

Table 8 exhibits the level of technology integration in terms of teacher's attitude. It shows that the overall mean is 4.27, in a very extensive level. This means that the technology integration in terms of teacher's attitude is always evident.

As revealed from the data that all 11 statements reveal a very extensive result. Of which, the three (3) items which have the highest mean score are as follows: believing technology will improve my teaching (4.30), believing technology promotes students' communication skills (4.29), and believing technology is a valuable instructional tool (4.28). These items prove that the technology integration in terms of teacher's attitude is always evident.

The findings of the study denote that teachers are committed and dedicated in improving their craft by means of intensifying their technological skills which they may use in teaching. Teachers believe that they could further improve their craft and help their learners learn more by incorporating technology. They also believe that with the use of technology, students communication skills will be strengthened. More so, teachers do accept the idea

Table 8. Extent of Technology Integration in terms of Teacher's Attitudes

No	Teacher's Attitudes	Mean	Descriptive Equivalent
1	believing technology is a valuable instructional tool.	4.28	Very Extensive
2	believing technology will improve my teaching.	4.30	Very Extensive
3	believing technology increases academic achievement.	4.25	Very Extensive
4	believing technology motivates students.	4.27	Very Extensive

5	believing technology promotes student collaboration.	4.26	Very Extensive
6	believing technology promotes students' communication skills.	4.29	Very Extensive
7	believing the time it takes for me to learn how to use technology is better spent on other aspects of my work.	4.27	Very Extensive
8	being comfortable in using technology.	4.26	Very Extensive
9	feeling confident about my ability to use technology.	4.24	Very Extensive
10	getting relaxed when I am using technology.	4.26	Very Extensive
11	thinking technology makes my job easier.	4.27	Very Extensive
Overall		**4.27**	**Very Extensive**

that technology is an essential tool in imparting learning to their students.

This confirms the concept of Morey (2020) validating that the attitudes people have toward technology are the convictions they have and the experiences they have, which influence how they utilize it. It can also be described as the elements that identify, categorize, and characterize the organization and content of the mental states believed to direct a person's behavior and to anticipate how they will utilize technology. In the educational setting, Hobbs and Tuzel (2017) stated that the decisions teachers make in the classroom about the use of technology in teaching and learning procedures are influenced by their attitudes toward technology.

Furthermore, Lamb (2011) believed that teachers' views significantly affect how they adopt or use computers in the classroom. Because of this powerful attitude influence, teachers may decide whether or not to employ technology in the classroom. Reid (2017) mentioned that whether or not teachers decide to employ educational technology for their own and their students' benefit is heavily influenced by their attitude toward it. The way a teacher feels about technology can be influenced by a number of different things. Individual and personal preferences, convictions, and comfort levels with how pedagogy, material, and technology are combined are the most prevalent of these aspects. Also, instructors' attitudes about using technology are enhanced and improved by their impressions of participating in online learning activities and their abilities to do so in the classroom (Morey, 2020).

Extent of Technology Integration in terms of Subjective Norm

Table 9 exhibits the extent of technology integration in terms of subjective norm. It shows that the overall mean is 4.26, in a very extensive level. This means that technology integration in terms of subjective norm is always evident.

It can be gleaned from the data that all 11 statements reveal a very extensive result. Of which, the three (3) items which have the highest mean score are as follows: believing that my colleagues help each other learn technology skills (4.30), believing that students expect teachers to use technology (4.29), and attending professional development for technology is encouraged by building administration (4.28). These items prove that the technology integration in terms of subjective norm is always evident.

The findings of the study implies that teachers are finding means to be

Table 9. Extent of Technology Integrationin terms of Subjective Norm

No	Subjective Norm	Mean	Descriptive Equivalent
1	feeling motivated by my students to use technology.	4.25	Very Extensive
2	feeling motivated by colleagues to use technology.	4.27	Very Extensive
3	feeling encouraged by the administration to use technology.	4.26	Very Extensive
4	feeling motivated by parents to use technology.	4.20	Very Extensive
5	believing that teachers who use technology to teach with are valued by building administration.	4.27	Very Extensive
6	believing that teachers who use technology to teach with are valued by the district administration.	4.26	Very Extensive
7	believing that students expect teachers to use technology.	4.29	Very Extensive
8	believing that my colleagues help each other learn technology skills.	4.30	Very Extensive
9	attending professional development for technology is encouraged by building administration.	4.28	Very Extensive

10	attending professional development for technology is encouraged by district administration.	4.27	Very Extensive
11	receiving a sufficient level of technology- related support at my school.	4.25	Very Extensive
Overall		**4.26**	**Very Extensive**

technologically oriented since it is the latest demand. Being oriented to technology helps them to improve their craft in teaching. Integrating technology in the classroom is a normal subject and a trend nowadays. In fact, it can be considered as a necessity in teaching. Considering this, teachers are helping each other in reinforcing their technological skills. Teachers do believe that their students expect them to be skilled in the use of technology. With that, school administration is encouraging their teachers to attend in the professional development that focuses about the use of technology.

This mirrored the stand of Davood et al. (2020) claiming that a person's perception of what the majority of people who value them believe they should or should not do is known as their subjective norm. Miles-Wright (2018) stressed that while conducive conditions had a little impact, teachers' subjective norms had a big impact on students' behavioral intents to utilize technology. Perera et al. (2020) affirmed that teachers are being influenced by subjective norms to conform to predetermined behaviors and viewpoints. Also, a person's desire to engage in social activities like belonging to a social group is influenced by their attitude and behavior, which are ingrained in the subjective norms (Bellucci et al., 2018).

Moreover, Lee (2010) mentioned that subjective norm is a key factor in decision-making and a precursor to the acceptance of technology. Furthermore, early in the adoption process, when users of new technology have little to no firsthand experience with it, subjective norm tends to be more significant. Potential users are more inclined to look to their social surroundings for evaluative information and indications when there are few other sources from which they might acquire assistance.

Extent of Technology Integration in terms of Perceived Behavioral Control

Table 10 showcases the technology integration in terms of perceived behavioral control. It shows that the overall mean is 4.27, in a very extensive level. This means that the technology integration in terms of perceived behavioral control is always evident.

As shown from the data that all 11 statements reveal a very extensive result. Of which, the three (3) items which have the highest mean score are as follows: having more training on how to integrate technology into the curriculum

Table 10. Extent of Technology Integration in terms of Perceived Behavioral Control

No	Perceived Behavioral Control	Mean	Descriptive Equivalent
1	learning to use technology requires a lot of time.	4.26	Very Extensive
2	having adequate time to learn new technology.	4.27	Very Extensive
3	having about knowledgeable about integrating technology into my courses.	4.28	Very Extensive
4	resolving most of my technology-related problems on my own.	4.22	Very Extensive
5	knowing more about using technology than most of my students.	4.23	Very Extensive
6	knowing more about using technology than most of my colleagues.	4.24	Very Extensive
7	having needs access to more technology.	4.27	Very Extensive
8	having more training with technology.	4.30	Very Extensive
9	having more training on how to integrate technology into the curriculum.	4.35	Very Extensive
10	knowing that professional development for technology is offered by the district.	4.26	Very Extensive
11	having technology skills are adequate in meeting my work-related needs.	4.33	Very Extensive
Overall		**4.27**	**Very Extensive**

(4.35), having technology skills are adequate in meeting my work-related needs (4.33), and having more training with technology (4.30). These items serve as proofs that technology integration in terms of perceived behavioral control is always evident.

This implies that teachers perceive the relevance of incorporating technology in the classroom situation which leads to the development of positive behavior towards technology integration. This behavior controls them and motivates teachers to be trained on how they could effectively use technology in the classroom. Teachers firmly believe that being equipped and empowered with technological skills may help them in attaining their work-related needs. With that kind of realization, teachers are hoping to be exposed more with trainings about technology.

The findings of this study supported the contention of Yu et al. (2021) citing that an individual's propensity to engage in particular activities is influenced by perceived behavioral control and control beliefs, which depend on a variety of factors, such as the accessibility of resources or opportunities. Moreover,

Kissick (2019) characterized perceived behavior as the person's perception of control over the outcomes or their capacity to engage in an action. It is the control that had an impact on the person's decision to engage in a behavior up until it was actually carried out.

Alazemi (2017) mentioned that perceived behavioral control is a key aspect when forecasting how people will behave when using technologies. The intention to employ technologies is positively and strongly influenced by perceived behavioral control. The intentions of preservice teachers to use technology are positively and significantly influenced by perceived behavioral control.

Summary on the Extent of Technology Integration

Table 11 provides the summary on the extent of technology integration. It is exhibited that the overall mean of technology integration is 4.26, which is in a very extensive level. This means that technology integration is always evident.

Data show that all three (3) indicators are in a very extensive level. As arranged chronologically, teacher's attitude (4.27) and perceived behavior control have both the highest mean. Meanwhile, subjective norm has the mean of 4.26.

Table 11. Summary on the Extent of Technology Integration

No	Indicators	Mean	Descriptive Equivalent
1	Teacher's Attitude	4.27	Very Extensive
2	Subjective Norm	4.26	Very Extensive
3	Perceived Behavioral Control	4.27	Very Extensive
Overall		**4.26**	**Very Extensive**

The favorable findings of this study supported the study of Bataller (2018) When using technology is routine and visible, and when it supports curriculum objectives, effective technology integration is achieved. Additional studies that highlight the top techniques used by educators who successfully integrate technology are required. Also, the three main strands of technology integration were classified as follows: interactive, learning experiences and assessment, and research and problem-solving.

Lamb (2011) mentioned that while evaluating teachers' views as predictors of technology integration: an application of the theory of planned behavior, there are three indicators—teachers' attitudes, subjective norms, and perceived behavioral control— which were substantially connected with this practice. More so, Leong (2016) stressed that the incorporation of technology affects how information is structured and delivered globally and can affect student learning, particularly when schoolteachers are digitally literate and understand how to assimilate and incorporate it into the classroom.

Significance of the Relationship Between the Principal Digital Leadership and Technology Integration

Presented in Table 12 are the data on the significance of the relationship between principal digital leadership and technology integration. Reflected in the

Table 12. Significance of the Relationship Between the Principal Digital Leadership and Technology Integration

Principal Digital Leadership	Dependent Variable	r-value	p- value	Decision on Ho
Leadership and Vision	**Technology Integration**	0.527	0.000	Ho is Rejected
Learning and Teaching		0.518	0.000	Ho is Rejected
Productivity and Professional Practice		0.534	0.000	Ho is Rejected
Support, Management, and Operations		0.512	0.000	Ho is Rejected
Assessment and Evaluation		0.555	0.000	Ho is Rejected
Social, Legal, and Ethical Issues		0.498	0.000	Ho is Rejected
Overall		**0.524***	**0.000**	**Ho is Rejected**

*Significant at 0.05 significance level.

hypothesis, the relationship was tested at 0.05 level of significance. The overall r-value of 0.524 with a p-value of <0.05 signified the rejection of the null hypothesis. It means that there is a significant relationship between principal digital leadership and technology integration. This shows that principal digital leadership is correlated with technology integration.

Doing a pairwise correlation among the measures of both variables, it can be gleaned that leadership and vision, learning and teaching, productivity and professional practice, support, management, and operations, assessment and evaluation, and social, legal, and ethical issues revealed computed r-values of 0.527, 0.518, 0.534, 0.512, .555, and 0.498 respectively with p-values which are less than 0.05 in the level of significance. This implies that as leadership and vision, learning and teaching, productivity and professional practice, support, management, and operations, assessment and evaluation, and social, legal, and ethical issues increase, technology integration also increases.

The result is in consonance to the study conducted by Hallinger and Heck (2010) pointing out that school leadership may affect students' learning outcomes. The leadership of a school principal has the power of continuously enhancing the quality of education, the development of a school and students' learning. Furthermore, the leadership of a school principal could boost teachers' teaching skills, improve the way of learning, and make a positive impact on students' learning. A school leader should actively introduce resources to school, boost students' willingness to learn and teachers' teaching in the process of teaching. The integration of supporting education technology may be utilized to assist teaching successfully.

Similarly, Kurland et al. (2010) stressed that principals who create school vision for effective technology integration and provide continuous professional development had been observed to be most effective in influencing teacher's integrating technology in the classroom. This finding is in line with Chang (2012) who conducted a study of 1,000 principals in Taiwan and found that principal's leadership improved teacher's literacy and directly influenced teachers to integrate technology into teaching. The role of principals should change from traditional school administrators to technology and curricula leaders (Chang, 2012).

Regression Analysis on the Influence of Principal Digital Leadership and Technology Integration

Shown in table 13 is the regression analysis on the principal digital leadership on technology integration. The overall p-value ($p<0.05$) denotes that principal digital leadership is a predictor of technology integration. The B values of the independent variable, principal digital leadership in terms of leadership and vision, learning and teaching, productivity and professional practice, support, management, and operations, assessment and evaluation, and social, legal, and ethical issues are 0.372, 0.368, 0.378, 0.395, and 0.355 respectively.

One unit change in leadership and vision will lead to .372 unit change in technology integration if the other predictor is at "0". In the same way, one unit change in learning and teaching will lead to .368 unit change in technology integration if the other predictor is at "0". Also, one unit change in productivity and professional practice will lead to .378 unit change in technology integration if the other predictor is at "0". In addition, one unit change support, management, and operations will lead to .395 unit change in technology integration if the other predictor is at "0". Lastly, one unit change in assessment and evaluation, and social, legal, and ethical issues will lead to .355 unit change in technology integration if the other predictor is at "0".

Among the five, assessment and evaluation indicates a higher influence on technology integration compared to other indicators. Lastly, the coefficient of determination of r-squared value is also shown in the table which was 0.464 or

Table 13. Regression Analysis on the Influence of Principal Digital Leadership and Technology Integration

Technology Integration				
Principal Digital Leadership	**β (Standardized Coefficients)**	**B (Unstandardized Coefficients)**	**T**	**Sig.**
Constant	0.712	0.110	5.877	0.000
Leadership and Vision	0.372	0.335	11.686	0.000
Learning and Teaching	0.368	0.334	11.595	0.000
Productivity and Professional Practice	0.378	0.338	11.698	0.000
Assessment and Evaluation	0.395	0.345	11.754	0.000
Social, Legal, and Ethical Issues	0.355	0.327	11.554	0.000
R	0.459			
R^2	0.464			
F	125.215			
P	0.000			

46.4% of the technology integration is explained by the domains of principal digital leadership which are leadership and vision, learning and teaching, productivity and professional practice, support, management, and operations, assessment and evaluation, and social, legal, and ethical issues. Hence, the hypothesis that there is no domain in principal digital leadership that significantly influences technology integration is rejected.

The result of the study conforms to the Technology Leadership Model proposed by Anderson and Dexter (2005) which emphasized about technology leadership. According to Anderson and Dexter (2005), technology leadership comprises of all activities related to technology in school, including organizations' decisions, policies, and technology implementation. This model explains the two-way relationship between technology leadership and school infrastructure. The increase of internet usage, technology integration, and usage of technology tools by students would demand strong technology leadership.

As the leader of a school, a school principal should be literate in information technology so that school staff can also make good use of technology in teaching, create a teaching environment which facilitates students' motivation to learn, and achieve the goal of being a highly-acclaimed school. The above statement has expounded on the importance of principal technology leadership. Ray (1992) pointed out that exceptional technology leadership calls for excellent people skills, communication skills, and technology skills.

Bailey (1997) mentioned that a school leader should make use of leadership skills to assist an organization to utilize fast-changing technology for a good cause. Anderson and Dexter (2005) suggested that technology leadership refers to a school's more effective use of information technology in decision-making, policy-making, and actions. Principal technology leadership can facilitate changes in a school as well as incorporate and utilize diverse solutions in learning, teaching, and school administration (Afshari, Bakar, Luan, Samah, & Fooi, 2008).

Schmeltzer (2001) further pointed out that a technology leader has to know how to use technology to improve teaching, develop strategies to help teachers incorporate technology into teaching, as well as form a technology team and a support system to continuously promote an entire organization's use of new technology. Creighton (2003) proposed that a school principal's important tasks include planning and carrying out innovative technology strategies, assist teachers to perceive and understand the importance of teaching and technology, and integrate technology into curriculum and teaching in order to improve the effectiveness of teaching.

4. Conclusion and Recommendations

Presented in this chapter are the findings based on the results of data gathered, the conclusions drawn from the findings and the recommendations for consideration.

Findings

The main focus of the study was to determine the significance of the relationship between principal digital leadership and technology integration of public elementary teachers. The study was conducted in the selected public elementary schools in Davao del Norte Division. There were one hundred fifteen (115) elementary teachers who participated in this study. Descriptive correlational method of research was used in this study utilizing adapted research instruments. The said instruments were validated by the panel of experts and subjected to pilot testing before it was made ready for administration. Mean, Pearson Product Correlation of Coefficient and Regression Analysis were the statistical tools used in analyzing the data. The hypotheses raised in this study were tested at 0.05 level of significance.

The major findings of the study were the following: the principal digital leadership is very extensive. Meanwhile, the extent of technology integration among the respondents is very extensive. It was found out that there is a significant relationship between principal digital leadership and technology integration of public elementary teachers. Moreover, it was revealed that all domains of principal digital leadership significantly influence technology integration. Hence, the hypotheses that no significant relationship between principal digital leadership and technology integration and no domains of principal digital relationship significantly influence technology integration were rejected.

Conclusions

Based on the findings of this study, the following conclusions were offered:

The extent principal digital leadership implies that it is always evident among school heads. In particular, leadership and vision, productivity and professional practice, and assessment and evaluation are always evident among school heads while learning and teaching; support, management, and operations; and social, legal, and ethical issues are oftentimes evident. Meanwhile, the extent of technology integration of public elementary teachers is always evident in the schools. Specifically, teacher's attitude, subjective norm, and perceived behavioral control are always evident among teachers.

Based on the findings, principal digital leadership and technology integration are correlated. Also, principal digital leadership significantly influences technology integration of public elementary teachers. In fact, all domains of principal technology leadership namely, leadership and vision; learning and teaching; productivity and professional practice; support, management, and operation; assessment and evaluation; and social, legal, and ethical issues significantly influence technology integration by registering a p-value of .000 which is less than .05 in the level of significance. This leads to the rejection of the null hypotheses. Further, the result indicates that for every unit increase in the six domains of principal digital leadership, the technology integration will increase.

Recommendations

The following suggestions were offered based on the conclusions of the study:

The higher officials in the Department of Education may craft other effective policies, programs, projects, interventions and activities which may further sustain the digital leadership of school heads and technology integration of teachers.

Moreover, school principals may find means in enhancing their digital leadership. They may employ self-assessment evaluating the status of their digital leadership and how does it affect the technology integration of the teachers.

Furthermore, teachers may take an effort keep on upgrading themselves. They may attend various seminars, webinars, or any undertaking that would help them reinforce their technology integration.

Lastly, future researchers may explore other relevant information about principal digital leadership and technology integration of teachers. Also, other means of research approach may be utilized to further explore the involved variables in this study.

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