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Administrators' Information Technology Leadership Preparedness for the New Normal

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Abstract

Aim: This study determined the school administrators' preparedness for information technology leadership as assessed by the teachers and the school administrators themselves of Guangdong Business and Technology University and Guangdong Polytechnic College towards a management development program.

Methodology: This study used descriptive-comparative research which is fact-finding with interpretation. The respondents of this study were taken from the administrators and teachers of Guangdong Business and Technology University and Guangdong Polytechnic College in China. The analysis of the hypotheses was carried out using the 0.05 level of significance.

Results: Teacher respondents strongly agree that the technology leadership preparedness of the school administrators is very high which is indicative of better technology integration in the school for these administrators. The overall mean of 3.50 indicates the agreement from the administrator respondents that technology leadership preparedness of the school administrators is high and shows that the administrators are very much willing and prepared to integrate technology into the very core of the school. Comparing the assessment of the administrator respondents and the teacher respondents on the technology leadership preparedness of school administrators, a computed T-value of 1.51 and a significance value of 0.13 were identified. Since the significance value is greater than 0.05 level of significance, the null hypothesis is accepted which means that there is no significant difference in the assessment of the administrator respondents and the teacher respondents on the technology leadership preparedness of school administrators.

Conclusion: The administrator respondents sees that the technology leadership preparedness of the school administrators is high and shows that the administrators are very much willing and prepared to integrate technology into the very core of the school. The ideas of leading and managing have been merged with regard to the practical integration of technology into schools to create the technological leadership techniques taken into consideration in this study.

Keywords: *Administrators, Information Technology Leadership, Preparedness, New Normal*

INTRODUCTION

At the beginning of 2020, COVID-19 broke out in China. In order to prevent the spread of COVID-19 to schools and ensure the safety and health of teachers and students, the Ministry of Education in China issued an online platform for all levels and of all kinds of schools, actively respond and carry out online teaching activities. Currently, there are about 237,000 primary and secondary schools in China, with nearly 190 million primary and secondary school students. Although such large-scale online teaching is a special move to deal with the epidemic, it is also an important opportunity to promote the development of school informatization. It is a rare opportunity to test and improve the information leadership of school administrators.

The administrator is the highest person in charge of the school administration, representing the school externally and presiding over the overall school affairs internally, and plays a key role in planning, designing, organizing, implementing, and evaluating the work of the academic community.

Therefore, "What is the information technology leadership of school administrators?", "How to improve the information technology leadership of school administrators?" are two problems that every administrator should be aware of in the information environment.



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School administrators must ensure that information technology is available for student and teacher use; however, school administrators must also participate in information technology use preparation so they can use the 21st-century information technology as well as encourage its use.

Therefore, the purpose of this study is to determine the assessment of school administrators on their technology leadership preparedness in the new normal.

Administrator information technology leadership has a positive impact on school informatization efficiency. The educational technology leadership of the administrator has provided huge internal motivation for the information construction of the school. At the same time, the development of school information construction will also promote the further improvement of administrator leadership, and the two present a good interactive relationship. Mojgan A Fshari and other scholars pointed out that the administrator's role as a technology leader is of great significance for promoting school informatization teaching and management. But at the same time, with the in-depth construction of education informationization 2.0, although some scholars have explored the connotation evolution and improvement mode of administrator information technology leadership in the era of education informationization 2.0, there is an internal relationship between administrator information technology leadership and school informationization development remains to be explored whether the application mechanism has produced an innovative reform path under the new information construction background.

In the learning society of the new era, the administrator should not only have a good attitude and realm of being a man, have the depth and height of seeing problems, but also have the wisdom and tenacity to achieve great things.

In the educational work carried out by schools, information technology is an important carrier of school education, an important way of teacher development, and an effective way of school characteristic construction. In schools, it is of great significance to improve the assessment of information leadership of school administrators for the development of the whole school.

The COVID-19 pandemic has brought difficulties to school operations and challenges to school leadership (Sanchez, et al., 2022; Sanchez, 2020a). The role of leadership is particularly important in this critical period. To ensure the orderly operation of the school, it is the school leadership that can respond quickly and arranges the opening of the school.

The study of school leaders' preparedness for a technology-rich environment is important for several reasons. An effective building administrator is crucial to effecting change and improving student achievement. School administrators have a wide variety of administrative and managerial tasks to perform, including school technology integration. The leading role of the administrator directly determines the future development of the school.

Understanding the development status and implementation difficulties of school administrators' information technology leadership will help improve the effectiveness of online teaching and provide a reference for school informatization management in the post-epidemic era.

The emergence of new information technology has constantly changed the environmental conditions and state of the internal Leadership system of organizations, thus constantly leading to the change in Leadership structure and Leadership style. People call the new changes in Leadership caused by information as information-oriented e-leadership.

However, China is not rich enough in the relevant research on the information leadership of university administrators. At present, relevant research mainly focuses on the concept and connotation of the information leadership of school administrators, the development and evolution of the information leadership of school administrators at home and abroad, the information leadership efficiency of school administrators, and the influencing factors of the information leadership of school administrators. Most of the relevant research takes school administrators as the direct research object to explore the informational leadership of school administrators.

Taking this as the starting point, this study finds the core elements of school administrators' information technology leadership on the basis of relevant theoretical research, so as to provide a reference for the decision-making basis for the improvement of the information technology leadership of school administrators. And to understand the development status and implementation difficulties of school administrators' information technology leadership will help improve the effectiveness of online teaching and provide a reference for school information technology management in the post-epidemic era.



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Educational leader

An educational leader is an administrator in the school environment. For the purpose of this study, the educational leader is used interchangeably with leader, administrator, and administrator.

Educational leader preparation

Educational leader preparation includes traditional educational programs provided by accredited colleges and universities that lead to professional certification in Educational Administration. Programs developed and offered by school districts or other national organizations are also included in this definition.

Technology leadership

Technology leadership is defined as tasks and inclinations of the administrator that support effective instructional technology integration (McLeod, 2019).

Technology-rich environment

A technology-rich environment consists of ubiquitous access to technology for students and staff. This includes access to information, administrative technologies, and instructional technologies. This definition includes but is not limited to computers, interactive whiteboards, student response systems, digital content systems, student information systems, parent dashboards, electronic mail, video-conferencing, social networking web-sites, and hand-held learning devices (Halpirt, 2021).

The Role of the Administrator

Securing and allocating necessary financial resources for technology is one of the many responsibilities of a building leader. There are widely accepted agreement among researchers, such as Creighton (2021), Marzano et al. (2019), Sanchez (2022), and Stronge et al.(2021), to name a few, that "effective leadership is second only to classroom instruction among all school-related factors that contribute to what students learn at school" (Leithwood & Riehl, 2019; Dizon & Sanchez, 2020). However, there are differences in what research says about the roles or qualities of an administrator. Several frameworks have emerged to add to the body of knowledge about school leadership, namely the role of the administrator.

In 2019, Marzano, Waters, and McNulty published a more recent synthesis of 35 years of research on educational leadership. This meta-analysis re-iterated the assumption that "school leadership has a substantial effect on student achievement and provides guidance for experienced and aspiring administrators alike" (Marzano et al., 2019 p. 12). Marzano et al. (2019) generated a research-based list of administrator responsibilities similar in length to Cotton's behaviors. Marzano et al. (2019) published 21 responsibilities of a school administrator and their correlation with student academic achievement. The 21 responsibilities are affirmation, change agent, contingent rewards, communication, culture, discipline, flexibility, focus, ideals/beliefs, input, intellectual stimulation, involvement in curriculum, instruction and assessment, knowledge of curriculum, monitoring/ evaluating, optimizer, order, outreach, relationships, resources, situational awareness, and visibility. Furthermore, the 21 responsibilities were subdivided to indicate those necessary for first-order and second-order change in an educational environment.

In 2021, Stronge, Richard, and Catano developed five qualities of effective school administrators based on existing research, applicable policy, and theoretical perspectives. The five qualities are: "building a vision, sharing leadership, leading a learning community, gathering data, and monitoring curriculum and instruction" (p. 14). This research recognized that the nature of the administrator's role has changed and there is an increasing number of responsibilities required of school administrators.

The qualities of an administrator have been enumerated in great detail, such as those published by Cotton (2021) and Marzano et al. (2019). Other prominent researchers, Leithwood and Riehl (2019) and Stronge et al. (2021), simplified the qualities into a manageable number of categories. Either way, the compilation of research generates several lists of qualities required of effective school administrators. The researchers' work also validated the importance of the administrator.

Many studies and theorists agree that leadership is the most important factor in effective school change (Leithwood & Riehl, 2019; Stronge et al., 2018; Sanchez, 2023; Sanchez & Sarmiento, 2020), including change brought about by technology. Specifically, the administrator's role in visionary leadership, modeling best practices, and support for instructional technology is key to successful technology integration. Kozloski (2019) advised that "educational leaders must seek to understand, promote and implement the notion that technology integration is not



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about the technology, it is about focusing on future generations and leading teachers to a change in pedagogy to support these generations with 21st century teaching and learning strategies that increase student achievement”.

Dexter (2019) added that teachers look to school administrators to get and give input about technology uses for teaching and learning. School administrators’ actions determine the aspects of innovation that are implemented. Leonard and Leonard (2019) concluded that “most of the literature on leadership and technology either explicitly or implicitly places the ultimate responsibility for the use of educational technology in the purview of the administrator”. The influence of information technology on education is deepening day by day. It has become a strategic choice for the reform and development of Education in China to comprehensively promote the modernization of education through educational informatization.

The Education Informatization 2.0 Action Plan issued by the Ministry of Education is hereinafter referred to as the action plan. The action plan puts forward new requirements for promoting the renewal of education concept, reform of education mode, reconstruction of the education system, and other aspects. The overall goal of the action plan in education management is to establish a perfect education management system, form excellent education management ability, fully realize the modernization of education management, and continuously improve the informatization level of education management.

In December 2019, China issued the standard of information-based Leadership for school administrators. The basic requirements of an administrator's professional development and an administrator's information leadership are put forward. In the era of education and information 2.0, the school administrators will inevitably face various contradictions in the process of leading the informatization of schools. Therefore, exploring the core elements of the informationization leadership of school administrators has become the key to solving the vertical and deep integration of informationization and education.

Technology Leadership of Administrators

In a study conducted by Köksal Banoğlu (2019), he stated that technology leadership roles in schools touch many responsibilities ranging from ensuring the appropriateness of lighting facilities in classrooms to the assurance of healthy computer usage and also ranging from using technology in ways that support democratic principles and protecting the equal access to technology to preventing gender inequality in technology usage.

An empirical study on the relationship between technology leadership strategies and the effectiveness of school administration of Chih-Hsiang and Weng Yao Tang (2019), found that school administrators were highly conscious of using technology leadership strategies and that these administrators generally possessed a high level of effectiveness regarding school administration. The results of the study also indicated that technology leadership strategies had a significantly positive impact on the effectiveness of school administration, and thus the former could significantly predict the latter. Their findings also revealed that technology leadership strategies should be an essential part of the school administrators' training programs for them to be effective.

Teachers' Perception of Administrators' Technology Leadership

School administrators' technology leadership is strongly correlated with teachers' integration of educational technology, and technology leadership is necessary for the effective utilization of technology in schooling (Sanchez, 2020b; Sanchez, 2020b). This was revealed in the study of Hua Chang, Joseph M. Chin, and Cheng-Mei Hsu published by the International Forum of Educational Technology & Society (2018). Their study empirically investigated teachers' assessment of school administrators' technology leadership practice in seven cities in Taiwan for understanding the implementation of technology leadership. The study used structural equation modeling with prospective data to test for model fit. The findings identified the four constructs (i.e., vision, staff development, infrastructure support, evaluation, and research) comprising school administrators' technology leadership. The findings also show that interpersonal and communication skills are important antecedents to school administrators' overall effective technology leadership. The results suggest that school administrators who embrace technology will effectively lead their schools to acquire educational resources to enhance student engagement and learning.

Technology leadership of school administrators in the 21st century was discussed in the study of Flanagan and Jacobson (2021). In this study, the researchers examined current issues related to technology integration and provided a contextual framework with which school administrators can undertake new leadership responsibilities in this area. Selected examples of successful technology integration were also provided to inform current technology leadership practices. The leadership goals, competencies, and responsibilities needed to achieve this preferred future were also described. In conclusion, the authors drew on professional experiences as researchers and teacher/leaders



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to build and expand on a five-part leadership model currently in use by a large urban school district to interpret multiple dimensions of technology leadership for school administrators. Ways in which this framework can serve as a guide for school leaders as they develop technology competencies, implement professional growth plans, work with their community, and provide daily technology leadership, mentorship, and advocacy for teachers in a school were discussed.

Theoretical Framework

The theoretical framework of this study is anchored on the following leadership theories.

Transformational Leadership Theory

The term transformational leadership first appeared in 1978 by James V. Downton. Then, James MacGregor Burns conceptualized transformational leadership in his famous book "Leadership" in 1978. According to Burns, transformational leadership can be seen when "leaders and followers make each other advance to a higher level of morality and motivation." Unlike the transactional approach, it is not based on a "give and take" relationship, but on the leader's personality, traits, and ability to make a change through example, articulation of an energizing vision, and challenging goals. From the perspective of transformational leadership theory, the leaders play more roles as the moral exemplar of working towards the benefit of an organization or a community than managers. Bernard M. Bass (1985), extended the work of Burns by explaining the psychological mechanisms that underlie transforming and transactional leadership. He explained how transformational leadership could be measured, as well as how it impacts follower motivation and performance.

ISTE Standards for Educational Leaders (2019)



Individual teachers have been using technology to transform education for decades. But to scale those transformations and meet the learning needs of all students requires education leaders who are visionary, adaptable, and thoughtful about managing change, and who model lifelong learning.

First and foremost, the new ISTE Standards for Education Leaders support the implementation of ISTE's Student and Educator Standards and provide a framework for guiding digital age learning.

And as with the Student and Educator Standards, these new standards identify specific personas for education leaders: Equity and Citizenship Advocate. Visionary Planner. Empowering Leader. Systems Designer. Connected Leader.

These standards are all about the knowledge and behaviors that are required for leaders to make student learning possible and for teachers to be empowered. And they're focused on some of the most-timely, yet enduring, topics in education today – equity in both access to technology and usage for learning, the new lens on digital citizenship, visioning, empowerment, team, and systems building, and professional growth. The ISTE Standards for Education Leaders reflect a more modern dispersed leadership model, moving away from the hierarchical models of the past.



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In total, the standards point to a leader's responsibilities in solving for equity, leading and participating in digital citizenship, creating a strategic plan, building a culture of empowerment, striving for continuous improvement, and committing to lifelong learning.

Conceptual Framework

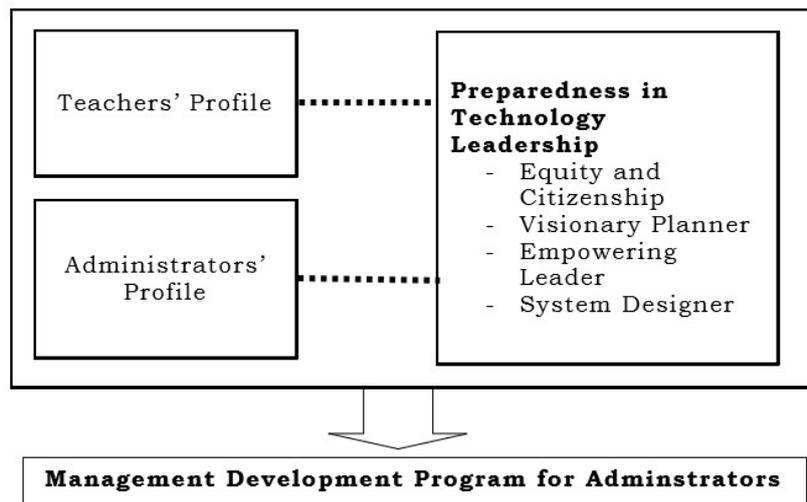


Figure 1. Research Paradigm

As shown in the research paradigm above, in the first box, the researcher determined the profiles of the school administrators and teacher respondents from Guangdong Business and Technology University and Guangdong Polytechnic College based on their age, sex, and tenure.

In the second box, the researcher determined the preparedness of the administrators for technology leadership as assessed by the school administrators themselves and the teachers of Guangdong Business and Technology University and Guangdong Polytechnic College in terms of equity and citizenship advocate, visionary planner, empowering leader, system designer, and connected learner.

The result of the analysis would be the basis for the researcher in developing a management development program for administrators.

Objective

This study determined the school administrators' preparedness for information technology leadership as assessed by the teachers and the school administrators themselves of Guangdong Business and Technology University and Guangdong Polytechnic College towards a management development program.

Specifically, it sought answers to the following questions:

1. What is the profile of the teachers and administrator respondents in terms of
 - 1.1. Age;
 - 1.2. Sex; and
 - 1.3. Tenure in the school?
2. What is the technology leadership preparedness of school administrators as assessed by themselves in terms of the following ISTE standards for educational leaders?
 - 2.1. Equity and Citizenship Advocate;
 - 2.2. Visionary Planner;
 - 2.3. Empowering Leader;
 - 2.4. System Designer; and
 - 2.5. Connected Learner?
3. Is there a significant difference in the preparedness of school administrators for technology leadership as assessed by themselves when their profile is taken as a test factor?



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4. What is the technology leadership preparedness of school administrators as assessed by their teachers in terms of the following ISTE standards for educational leaders?
 - 4.1. Equity and Citizenship Advocate;
 - 4.2. Visionary Planner;
 - 4.3. Empowering Leader;
 - 4.4. System Designer; and
 - 4.5. Connected Learner?
5. Is there a significant difference in the preparedness of school administrators for technology leadership as assessed by the teachers when their profile is taken as a test factor?
6. Is there a significant difference in the assessment between the administrators and teachers as regards the administrator's readiness for technology leadership?
7. Based on the findings of the study, what management development program for school administrators can be proposed?

METHODS

Research Design

This study used descriptive-comparative research which is fact-finding with interpretation. It utilized the gathering of data concerning the current state of things investigations through the distribution of questionnaires. It also involved the treatment of data in order to test hypotheses and answer questions concerning the current status of the subject of the study.

Locale of the Study

The study was conducted at the two schools: Guangdong Business and Technology University and Guangdong Polytechnic College in China.

Respondents

The respondents of this study were taken from the administrators and teachers of Guangdong Business and Technology University and Guangdong Polytechnic College in China. There are 967 and 1768 teachers from Guangdong Business and Technology University and Guangdong Polytechnic College in China respectively. They were chosen using the Qualtrics sampling at a 5% margin of error. 275 and 316 teachers were taken from them respectively.

There are 11 and 18 administrators from Guangdong Business and Technology University and Guangdong Polytechnic College in China respectively. Total enumeration was used from these two schools among the administrators.

The study used random sampling from Guangdong Business and Technology University, Guangdong Polytechnic College, and Guangzhou College of Applied Science and Technology.

Instruments

The survey were conducted by electronic questionnaire and were distributed through the administrator's and teachers' Wechat group.

Treatment of Data

For ease of the analysis of the data to be gathered, the researcher employed the following statistical tools and treatments for the analysis of the data: Frequency Count and Percentage. The researcher used these two measures on the profile variables in the study. Weighted Mean. This was used by the researcher in the analysis of data based on the respondents' answers. Standard Deviation. This was employed in every item that requires the mean values to determine the measures of dispersion of the responses given by the respondents.

The researcher used the following Likert scale:

Scale	Attitude	Perception
3.51-4.00	Strongly agree	Very High
2.51-3.50	Agree	High
1.51-2.50	Disagree	Low
1.00-1.50	Strongly disagree	Very low



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t-test or ANOVA. This parametric test was used by the researcher in testing three hypotheses.

Decision Criteria

The analysis of the hypotheses was carried out using the 0.05 level of significance..

RESULTS and DISCUSSION

3.1. Profile of the Respondents

Table 3.1 and 3.2 shows the profile of the teacher and administrator respondents in terms of their age, sex, and their tenure in the school.

Table 3.1
Frequency Distribution of the Teacher Respondents' Profile

Profile	Frequency	Percentage
Age		
20-30 years old	46	16.7%
31-40 years old	25	9.1%
41-50 years old	91	33%
Above 50 years old	114	41.3%
Total	276	100%
Sex		
Male	115	41.7%
Female	161	58.3%
Total	276	100%
Tenure in the School		
1-5 years	33	12%
6-10 years	47	17%
11-15 years	76	27.5%
16-20 years	101	36.6%
Above 21 years	19	6.9%
Total	276	100%

In terms of age, forty-six (46) or about 16.7% of the teacher respondents are 20 to 30 years old, twenty-five (25) or about 9.1% of the teacher respondents are within 31 to 40 years old, ninety-one (91) or about 33% of the teacher respondents are within 41 to 50 years, and one hundred and fourteen (114) or about 41.3% of the teacher respondents are above 50 years old. This means that majority of the teacher respondents are above 50 years old. This may be taken to mean that the teacher respondents have accumulated an extensive amount of experience in their field and in the teaching profession.

In terms of sex, one hundred and fifteen (115) or about 41.7% of the teacher respondents are male and the remaining one hundred and sixty-one (161) or about 58.3% of the teacher respondents are females. This means that majority of the teacher respondents are females in terms of sex. This may be taken to mean that there are more female teachers in the institution than male teachers.



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In terms of the tenure in school, thirty-three (33) or about 12% of the teacher respondents have been in the school between 1 to 5 years, forty-seven (47) or about 17% of the teacher respondents have been teaching in the institution within 6 to 10 years, seventy-six (76) or about 27.5% of the teacher respondents have been in the service for 11 to 15 years, one-hundred and one (101) or about 36.6% of the teacher respondents have been teaching for 16 to 20 years, and nineteen (19) or about 6.9% of the teacher respondents have been in the school for more than 21 years. This means that majority of the teacher respondents have been teaching for 16 to 20 years. This illustrates that the period of time that the teacher has spent being a teacher is extensive and that this translates to extensive experience.

Table 3.2
Frequency Distribution of the Administrator Respondents' Profile

Profile	Frequency	Percentage
Age		
20-30 years old	5	17.9%
31-40 years old	2	7.1%
41-50 years old	10	35.7%
Above 50 years old	11	39.3%
Total	28	100%
Sex		
Male	9	32.1%
Female	19	67.9%
Total	28	100%
Tenure in the School		
1-5 years	3	10.7%
6-10 years	4	14.3%
11-15 years	9	32.1%
16-20 years	10	35.7%
Above 21 years	2	7.1%
Total	28	100%

In terms of age, five (5) or about 17.9% of the administrator respondents are 20 to 30 years old, two (2) or about 7.1% of the administrator respondents are within 31 to 40 years old, ten (10) or about 35.7% of the administrator respondents are within 41 to 50 years, and eleven (11) or about 39.3% of the administrator respondents are above 50 years old. This means that majority of the administrator respondents are within the age group of 21 to 40 years old. This may be taken to mean that the administrator respondents have accumulated considerable experience given their age.

In terms of sex, nine (9) or about 32.1% of the administrator respondents are male and the remaining nineteen (19) or about 67.9% of the administrator respondents are females. This means that majority of the administrator respondents are females in terms of sex. This may be taken to mean that there are more female administrators in the institution than male administrators.

In terms of the tenure in school, three (3) or about 10.7% of the administrator respondents have been in the school between 1 to 5 years, four (4) or about 14.3% of the administrator respondents have been teaching in the institution within 6 to 10 years, nine (9) or about 32.1% of the administrator respondents have been in the service for 11 to 15 years, ten (10) or about 35.7% of the administrator respondents have been teaching for 16 to 20 years, and two (2) or about 7.1% of the administrator respondents have been in the school for more than 21 years. This means that majority of the administrator respondents have been in the administration for 16 to 20 years. This



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illustrates that the period of time that the administrators has spent being an administrator and being a teacher is extensive and that this translates to extensive experience.

3.2. Assessment on the Technology Leadership Preparedness of School Administrators

Table 3.3 and 3.4 presents the result of the assessment of teacher and administrator respondents on the technology leadership preparedness of school administrators.

Table 3.3
Assessment of Teacher-Respondents on the Technology Leadership Preparedness of School Administrators

The Teacher can ...	Mean	Qualitative Description	Interpretation
EQUITY AND CITIZENSHIP ADVOCATE			
1. Ensure all students have skilled teachers who actively use technology to meet student learning needs	3.48	Agree	High
2. Ensure all students have access to the technology and connectivity necessary to participate in authentic and engaging learning opportunities.	3.44	Agree	High
3. Model digital citizenship by critically evaluating online resources, engaging in civil discourse online and using digital tools to contribute to positive social change.	3.57	Strongly Agree	Very High
4. Cultivate responsible online behavior, including the safe, ethical and legal use of technology	3.52	Strongly Agree	Very High
VISIONARY PLANNER			
1. Engage education stakeholders in developing and adopting a shared vision for using technology to improve student success, informed by the learning sciences	3.59	Strongly Agree	Very High



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2. Build on the shared vision by collaboratively creating a strategic plan that articulates how technology will be used to enhance learning.	3.47		
3. Evaluate progress on the strategic plan, make course corrections, measure impact and scale effective approaches for using technology to transform learning.	3.57	Strongly Agree	Very High
4. Communicate effectively with stakeholders to gather input on the plan, celebrate successes and engage in a continuous improvement cycle.	3.60	Strongly Agree	Very High
5. Share lessons learned, best practices, challenges and the impact of learning with technology with other education leaders who want to learn from this work	3.61	Strongly Agree	Very High
EMPOWERING LEADER			
1. Empower educators to exercise professional agency, build teacher leadership skills and pursue personalized professional learning	3.53	Strongly Agree	Very High
2. Build the confidence and competency of educators to put the ISTE Standards for Students and Educators into practice.	3.56	Strongly Agree	Very High
3. Inspire a culture of innovation and collaboration that allows the time and space to explore and experiment	3.56	Strongly Agree	Very High



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with digital tools.			
4. Support educators in using technology to advance learning that meets the diverse learning, cultural, and social-emotional needs of individual students	3.58	Strongly Agree	Very High
5. Develop learning assessments that provide a personalized, actionable view of student progress in real-time	3.58	Strongly Agree	Very High
SYSTEMS DESIGNER			
1. Lead teams to collaboratively establish robust infrastructure and systems needed to implement the strategic plan	3.55	Strongly Agree	Very High
2. Ensure that resources for supporting the effective use of technology for learning are sufficient and scalable to meet future demand.	3.57	Strongly Agree	Very High
3. Protect privacy and security by ensuring that students and staff observe effective privacy and data management policies.	3.55	Strongly Agree	Very High
4. Establish partnerships that support the strategic vision, achieve learning priorities and improve operations	3.56	Strongly Agree	Very High
CONNECTED LEARNER			
1. Set goals to remain current on emerging technologies for learning, innovations in pedagogy, and	3.59	Strongly Agree	Very High



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advancements in the learning sciences.			
2. Participate regularly in online professional learning networks to collaboratively learn with and mentor other professionals.	3.59	Strongly Agree	Very High
3. Use technology to regularly engage in reflective practices that support personal and professional growth.	3.58	Strongly Agree	Very High
4. Develop the skills needed to lead and navigate change, advance systems and promote a mindset of continuous improvement for how technology can improve learning	3.59	Strongly Agree	Very High
Overall Mean	3.56	Strongly Agree	Very High

Legend: 3.51-4.00 Strongly Agree/ Very High; 2.51-3.50 Agree/ High; 1.51-2.50 Disagree/ Low; 1.00-1.50 Strongly Disagree/ Very Low

The assessment of teacher respondents on the technology leadership preparedness of school administrators revealed that the highest mean of 3.61, with the qualitative description of the teacher respondents strongly agreeing and is interpreted as exhibiting very high preparedness on technology leadership, was found for item 5 under visionary planner which states that the teacher shares lessons learned, best practices, challenges, and the impact of learning with technology with other education leaders who want to learn from this work. PLCs give teachers a simple approach to exchange best practices and come up with creative ideas to enhance instruction and raise student progress. For educators to exchange perspectives and believe that what they are doing in the classroom matters, effective communication is essential. These learning communities also help teachers think more critically on their own teaching methods and students' learning outcomes. When you meet with your PLC, you can share student progress, and when the data is shared between grade levels in the same building, administrators and teachers take responsibility for every student's education.

The lowest mean of 3.44, with the qualitative description of the teacher respondents agreeing and is interpreted as exhibiting high preparedness on technology leadership, was found for item 2 under equity and citizenship advocate which states that the teacher ensures all students have access to the technology and connectivity necessary to participate in authentic and engaging learning opportunities. Equitable access to technology is essential for educational possibilities as well as helping students develop the knowledge and skills required to function as smart digital citizens. Students who do not have equal access to technology and information miss out on learning opportunities and may even have fewer options after graduating. This year's requirement for distance learning only serves to perpetuate this imbalance. More than just giving students access to devices and connectivity constitutes access to technology. Additionally, it entails ensuring that each student gets the chance to study with a tech-savvy instructor.

The overall mean of 3.56 shows that the teacher respondents strongly agree that the technology leadership preparedness of the school administrators is very high which is indicative of better technology integration in the



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school for these administrators. Leadership in technology is crucial for a number of reasons. Students who are learning to use new technology must first get accustomed to it. After that, an educational technology specialist should be able to help other faculty members understand the best ways to use the tools at their disposal. Using a whiteboard or an online course management system in the classroom may be unfamiliar territory for some educators. Teachers who are knowledgeable about this technology can help less experienced teachers get the skills they need to better serve their students in the classroom. In the classroom, educational technology can play a variety of roles. The use of technology in education is constantly expanding, ranging from course management software that provides an outline and links to dynamic learning resources to specialized applications that help students develop their background knowledge. The technology specialist can help with resource evaluation for each new application that is released.

Since technology is increasingly being applied in all areas of our lives, technology leadership is a key issue with regard to school administration. The related educational technology management approaches usually embrace complex perspectives, including the relationships among the educational departments, enterprises, schools, and all stakeholders. There is wide agreement that the use of technologies with readily accessible, flexible and interactive resources can help promote parental engagement and develop connections among schools, communities, and families (Flanagan & Jacobsen, 2003; Hohlfeld, Ritzhaupt, & Barron, 2010; Lewin, & Luckin, R., 2010). The United Nations Educational, Scientific and Cultural Organization also noted that every professional teacher must now be prepared and able to use technology to support student learning (UNESCO, 2008). The North Central Regional Educational Laboratory (2010) has also argued that appropriate technology use can not only be very beneficial in increasing educational productivity, such as students' learning achievement and motivation, but also improve teachers' satisfaction and school administrative effectiveness. The researchers also suggest that students should be immersed in a rich, technology-enhanced learning environment, where they can select appropriate technologies to meet their own personal learning needs (Conole, late, Dillon, & Darby, 2008; Tapp, Kumar, & Hansen, 2006).

Technology in schools has too often been limited to the acquisition hardware and software. While an appropriate technology infrastructure or set of information and communication technology (ICT) resources are indispensable, technology planning and leadership are even more important for the effective utilization of technology in this context (Anderson & Dexter, 2005; Flanagan & Jacobsen, 2003). As a consequence, almost every K-12 leader must now become a technology director, coordinator, and supporter. Sugar (2005) stated that a technology coordinator must carry out a wide range of activities in their interactions with teachers, including instructing them on the particular set of skills needed to use a new technology, solving technical problems, providing access to existing technology resources, and collaborating with teaching staff to develop teaching materials. A school technology coordinator thus not only plays a crucial role in leading teachers to develop more effective K-12 school environments (Frazier & Bailey, 2004), but also serves as an instructional expert by providing advice, methods and strategies for appropriate curriculum-oriented technology use that maximizes students learning (Elsa & Kobus, 2003; Sugar & Holloman, 2009; Twomey, Shamburg, & Zieger, 2006). In sum, technology leadership is very important for the effective integration and use of technology in schools, and thus it is the focus of the current work.

Table 3.4
Assessment of Administrator-Respondents on the Technology Leadership Preparedness of School Administrators

The Teacher can ...	Mean	Qualitative Description	Interpretation
EQUITY AND CITIZENSHIP ADVOCATE			
1. Ensure all students have skilled teachers who actively use technology to meet student learning	3.53	Strongly Agree	Very High



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ISSN 2945-3577



The Exigency
ISSN 1908-3181

needs			
2. Ensure all students have access to the technology and connectivity necessary to participate in authentic and engaging learning opportunities.	3.42	Agree	High
3. Model digital citizenship by critically evaluating online resources, engaging in civil discourse online and using digital tools to contribute to positive social change.	3.50	Agree	High
4. Cultivate responsible online behavior, including the safe, ethical and legal use of technology	3.46	Agree	High
VISIONARY PLANNER			
1. Engage education stakeholders in developing and adopting a shared vision for using technology to improve student success, informed by the learning sciences	3.46	Agree	High
2. Build on the shared vision by collaboratively creating a strategic plan that articulates how technology will be used to enhance learning.	3.50	Agree	High
3. Evaluate progress on the strategic plan, make course corrections, measure impact and scale effective approaches for using technology to transform learning.	3.46	Agree	High
4. Communicate effectively with stakeholders to gather input on the plan, celebrate	3.50	Agree	High



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successes and engage in a continuous improvement cycle.			
5. Share lessons learned, best practices, challenges and the impact of learning with technology with other education leaders who want to learn from this work	3.53	Strongly Agree	Very High
EMPOWERING LEADER			
1. Empower educators to exercise professional agency, build teacher leadership skills and pursue personalized professional learning	3.46	Agree	High
2. Build the confidence and competency of educators to put the ISTE Standards for Students and Educators into practice.	3.53	Strongly Agree	Very High
3. Inspire a culture of innovation and collaboration that allows the time and space to explore and experiment with digital tools.	3.42	Agree	High
4. Support educators in using technology to advance learning that meets the diverse learning, cultural, and social-emotional needs of individual students	3.53	Strongly Agree	Very High
5. Develop learning assessments that provide a personalized, actionable view of student progress in real-time	3.53	Strongly Agree	Very High
SYSTEMS DESIGNER			
1. Lead teams to	3.60	Strongly	Very High



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ISSN 1908-3181

collaboratively establish robust infrastructure and systems needed to implement the strategic plan		Agree	
2. Ensure that resources for supporting the effective use of technology for learning are sufficient and scalable to meet future demand.	3.50	Agree	High
3. Protect privacy and security by ensuring that students and staff observe effective privacy and data management policies.	3.46	Agree	High
4. Establish partnerships that support the strategic vision, achieve learning priorities and improve operations	3.53	Strongly Agree	Very High
CONNECTED LEARNER			
1. Set goals to remain current on emerging technologies for learning, innovations in pedagogy, and advancements in the learning sciences.	3.50	Agree	High
2. Participate regularly in online professional learning networks to collaboratively learn with and mentor other professionals.	3.53	Strongly Agree	Very High
3. Use technology to regularly engage in reflective practices that support personal and professional growth.	3.57	Strongly Agree	Very High
4. Develop the skills needed to lead and navigate	3.53	Strongly Agree	Very High



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change, advance systems and promote a mindset of continuous improvement for how technology can improve learning			
Overall Mean	3.50	Agree	High

Legend: 3.51-4.00 Strongly Agree/ Very High; 2.51-3.50 Agree/ High; 1.51-2.50 Disagree/ Low; 1.00-1.50 Strongly Disagree/ Very Low

The assessment of the administrator respondents on the technology leadership preparedness of school administrators revealed that the highest mean of 3.60, with the qualitative description of the administrator respondents strongly agreeing and is interpreted as exhibiting very high preparedness on technology leadership, was found for item 1 under systems designer which states that the administrators lead teams to collaboratively establish robust infrastructure and systems needed to implement the strategic plan. All school improvement initiatives, including those that are technological in nature, are expected to be led by school administrators. In order to foresee, envisage, preserve flexibility, think strategically, and collaborate with others to initiate changes that will create a successful future for the organization, school leaders must possess the fundamental skill of strategic leadership. Better strategic leadership can be attained through three key strategies: (1) developing a strategic vision based on data, informed assumptions, and the best-possible what-if analysis; (2) implementing and communicating the vision across the organization to clarify and align the role of each player and process that is strategically important; and (3) monitoring, reviewing, and updating the vision to ensure its ongoing strength, agility, and relevance.

The lowest mean of 3.42, with the qualitative description of the administrator respondents agreeing and is interpreted as exhibiting high preparedness on technology leadership, was found for item 2 under equity and citizenship advocate which states that the administrators ensure all students have access to the technology and connectivity necessary to participate in authentic and engaging learning opportunities and item 3 under empowering leader which states that the administrators inspire a culture of innovation and collaboration that allows the time and space to explore and experiment with digital tools. Rich, realistic learning assignments that bring what is being taught to life are beneficial for all pupils. Without memorable encounters, school becomes monotonous and uninteresting. Student boredom and a sense of disconnection from school and their own learning might result from instruction that just emphasizes memorization and skill acquisition. Diverse forms of technology are used in the classroom to generate students who are actively engaged in learning goals. Technology integration also opens doors for differentiated instruction to meet each student's specific needs as an individual learner within a larger classroom environment.

The overall mean of 3.50 indicates the agreement from the administrator respondents that technology leadership preparedness of the school administrators is high and shows that the administrators are very much willing and prepared to integrate technology into the very core of the school. The ideas of leading and managing have been merged with regard to the practical integration of technology into schools to create the technological leadership techniques taken into consideration in this study. There are five major tasks and responsibilities in leadership that have an impact on both the performance and culture of schools: leader of learning, leader of student entitlement, leader of capacity building, leader of community, and leader of resource management. In their capacities, school administrators help all school stakeholders realize the full potential of ICTs in education by providing financial resources, technological infrastructure, social support, and moral uplift. Leadership in technology is a better indicator of technological achievements with relation to infrastructure and budget. Considering the multiple responsibilities that school leaders are expected to fulfill, technology leadership is therefore seen as being extremely important to ICT integration.

The integration of technology into strategic leadership has been emphasized by researchers in many non-educational fields, as it can increase the probability of achieving superior long-term performance (Hinterhuber & Friedrich, 2002; Hitt, Ireland, Camp, & Sexton, 2001). Since schools are places for developing competitive manpower, they should also adopt strategic plans to use technology well, and to support such ICT innovations (Hagenson & Castle, 2003). In this context, Booth (2011) stated that support from school administrators, a clear and articulated vision and collaboration among administrators and faculty, are also critical for success in applying ICT.



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Strategic leadership is as an essential capability that school leaders require to anticipate, envision, maintain flexibility, think strategically, and work with others in initiating changes that will create a viable future for the organization. There are three critical approaches to achieving better strategic leadership: (1) formulating a strategic vision based on facts, informed assumptions, and the best-possible what-if thinking; (2) implementing and communicating the vision throughout the organization to clarify and align the role of every strategically critical player and process; (3) monitoring, reviewing, and updating the vision to ensure its continued strength, agility, and relevance. As Freedman and Tregoe (2004) urged senior executives to force themselves to take the longer term perspective that strategic leadership demands, we believe that strategic leadership can provide a foundation for integrating technology into educational contexts. Over the past two decades, school leaders have been required to become instructional leaders and focus on students' learning by emphasizing effective leadership strategies, use of data for decision making, vision sharing, and parental involvement in administrative matters. In fact, leadership is an important factor in developing effective, innovative schools and in facilitating quality teaching and learning (Dinham, 2005). Transformational leadership can also benefit school leaders by increasing the successful use of technology in schools (Mojgan, Kamariah, Wong, Bahaman, & Foo, 2009). Transformational leadership theory provides practical guidance for technology leadership researchers to follow. Generally speaking, transformational leaders make decisions based on a broad perspective, organizational vision and mission, group goals, and network development. Some of the behaviors of transformational leaders applicable in both educational and business settings may include the following: (1) identifying and articulating an organizational vision; (2) fostering acceptance of group goals; (3) having high performance expectations; (4) providing appropriate models; (5) providing intellectual stimulation; and (6) developing a strong organizational culture (Lashway, Mazzarella, & Grundy, 1995). Technology leadership strategies have thus been developed on the basis of various transformational leadership behavioral characteristics to achieve various educational goals.

3.2. Significant Differences in the Assessment of the Respondents on the Technology Leadership Preparedness of School Administrators

Table 3.5 and 3.6 present the significant differences in the assessment of teacher and administrator respondents on the technology leadership preparedness of school administrators when the demographic profile of the teacher respondents are taken as test factors.

Table 3.5
Difference on Assessment of Teacher Respondents on the Technology Leadership Preparedness of School Administrators according to Profile

Variable	Profile	Mean	SD	F-value/ T-value	Sig	Decision on Ho	Interpretation
Age	20-30 years old	3.53	.18	.92	.42	Accepted	Significant
	31-40 years old	3.55	.15				
	41-50 years old	3.55	.17				
	Above 50	3.57	.16				



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	years old						
	Total	3.56	.17				
Sex	Male	3.55	.17	.02	.59	Accepted	Not Significant
	Female	3.56	.17				
	Total	3.56	.17				
Tenureship	1-5 years	3.57	.15	.83	.50	Accepted	Not Significant
	6-10 years	3.52	.20				
	11-15 years	3.56	.15				
	16-20 years	3.56	.17				
	Above 21 years	3.59	.17				
	Total	3.56	.17				

In terms of age, a computed T-value of 0.92 and a significance value of 0.42 were identified. Since the significance value is greater than 0.05 level of significance, the null hypothesis is accepted which means that there is no significant difference in the assessment of teacher respondents on the technology leadership preparedness of school administrators when they are grouped according to age. This means that there is no difference in the assessment of teacher respondents on the technology leadership preparedness of school administrators despite the difference in age. This goes to show that the younger and older teacher respondents have the same evaluation on the technology leadership preparedness of school administrators. Thus, the factor age does not affect the assessment of teacher respondents on the technology leadership preparedness of school administrators.

In terms of sex, a computed F-value of 0.02 and a significance value of 0.59 were found. Since the significance value is greater than 0.05 level of significance, the null hypothesis is accepted which means that there is no significant difference in the assessment of teacher respondents on the technology leadership preparedness of school administrators when sex is a test factor. This means that there is no difference in the assessment of teacher respondents on the technology leadership preparedness of school administrators although there is a difference in sex. This illustrates that both the female and the male teachers have the same assessment of the technology leadership preparedness of school administrators. Therefore, the factor sex does not affect the assessment of teacher respondents on the technology leadership preparedness of school administrators.

In terms of tenureship, a computed T-value of 0.83 and a significance value of 0.50 were found. Since the significance value is greater than 0.05 level of significance, the null hypothesis is accepted which means that there is no significant difference in the assessment of teacher respondents on the technology leadership preparedness of school administrators when tenureship is a test factor. This means that there is no difference in the assessment of teacher respondents on the technology leadership preparedness of school administrators although there is a difference in the teacher respondent's tenure. This illustrates that both the older and the newer teachers have the same assessment of the technology leadership preparedness of school administrators. Therefore, the factor tenure in the school does not affect the assessment of teacher respondents on the technology leadership preparedness of school administrators.



Table 3.6
Difference on Assessment of Administrator Respondents on the Technology Leadership Preparedness of School Administrators according to Profile

Variable	Profile	Mean	SD	F-value/ T-value	Sig	Decision on Ho	Interpretation
Age	20-30 years old	3.52	.18	.74	.53	Accepted	Significant
	31-40 years old	3.31	.51				
	41-50 years old	3.58	.22				
	Above 50 years old	3.45	.29				
	Total	3.50	.26				
Sex	Male	3.49	.32	.02	.20	Accepted	Not Significant
	Female	3.51	.24				
	Total	3.50	.26				
Tenureship	1-5 years	3.57	.06	.41	.79	Accepted	Not Significant
	6-10 years	3.63	.20				
	11-15 years	3.50	.30				
	16-20 years	3.44	.31				
	Above 21 years	3.47	.03				
	Total	3.50	.26				

In terms of age, a computed T-value of 0.74 and a significance value of 0.53 were identified. Since the significance value is greater than 0.05 level of significance, the null hypothesis is accepted which means that there is no significant difference in the assessment of administrator respondents on the technology leadership preparedness



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ISSN 2945-3577



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ISSN 1908-3181

of school administrators when they are grouped according to age. This means that there is no difference in the assessment of the administrator respondents on the technology leadership preparedness of school administrators despite the difference in age. This goes to show that the younger and older administrator respondents have the same evaluation on the technology leadership preparedness of school administrators. Thus, the factor age does not affect the assessment of administrator respondents on the technology leadership preparedness of school administrators.

In terms of sex, a computed F-value of 0.02 and a significance value of 0.20 were found. Since the significance value is greater than 0.05 level of significance, the null hypothesis is accepted which means that there is no significant difference in the assessment of administrator respondents on the technology leadership preparedness of school administrators when sex is a test factor. This means that there is no difference in the assessment of administrator respondents on the technology leadership preparedness of school administrators although there is a difference in sex. This illustrates that both the female and the male administrators have the same assessment of the technology leadership preparedness of school administrators. Therefore, the factor sex does not affect the assessment of administrator respondents on the technology leadership preparedness of school administrators.

In terms of tenureship, a computed T-value of 0.83 and a significance value of 0.50 were found. Since the significance value is greater than 0.05 level of significance, the null hypothesis is accepted which means that there is no significant difference in the assessment of administrator respondents on the technology leadership preparedness of school administrators when tenureship is a test factor. This means that there is no difference in the assessment of administrator respondents on the technology leadership preparedness of school administrators although there is a difference in the teacher respondent's tenure. This illustrates that both the older and the newer administrators have the same assessment of the technology leadership preparedness of school administrators. Therefore, the factor sex does not affect the assessment of administrator respondents on the technology leadership preparedness of school administrators.

3.3. Significant Relationship Between the Assessment of the Administrator Respondents and the Teacher Respondents on the Technology Leadership Preparedness of School Administrators

Table 3.7 shows the significant relationship between the assessment of the administrator respondents and the teacher respondents on the technology leadership preparedness of school administrators.

Table 3.7
Relationship between the Assessment of the Administrator Respondents and the Teacher Respondents on the Technology Leadership Preparedness of School Administrators

Variable	Profile	Mean	t-value	Sig	Decision on Ho	Interpretation
Technology Leadership Preparedness of School Administrators	Teachers	3.56	1.51	.13	Accepted	Not Significant
	Administrators	3.50				

Comparing the assessment of the administrator respondents and the teacher respondents on the technology leadership preparedness of school administrators, a computed T-value of 1.51 and a significance value of 0.13 were identified. Since the significance value is greater than 0.05 level of significance, the null hypothesis is accepted which means that there is no significant difference in the assessment of the administrator respondents and the teacher respondents on the technology leadership preparedness of school administrators. This means that there is no difference in the assessment of administrator respondents and that of the teacher respondents on the technology leadership preparedness of school administrators. This illustrates that both the teachers and the administrators have



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The Exigency
ISSN 1908-3181

the same assessment of the technology leadership preparedness of school administrators. Therefore, there is no significant difference between the assessment of the two respondents: the administrators and the teachers on the technology leadership preparedness of school administrators.

Developing an understanding that technology in the K-12 classroom is evolving from adapting lessons that highlight a technology to pervasive use of interactive and handheld devices. This instruction-technology connection creates high expectations to engage today's learners and transform education to support 21st century skills. In this environment, school leaders have the complex task of incorporating technologies to enhance teaching and learning. In addition, researchers note that today's students have grown up immersed in technology and some schools are responding to this demand by providing more engaging and collaborative technologies for students and staff (Gosmire & Grady, 2007; Prensky, 2010). However, some school leaders have not been prepared to support ever-changing technology-rich environments (Bush, 2008; Levin, 2005).

Researchers have attempted to identify the necessary skills for technology leadership (Anderson & Dexter, 2005; Davies, 2010; Grady, 2011). In 2005, Anderson and Dexter (2005) developed a model for technology leadership with eight technology leadership indicators: technology committee, school technology budget, district support, principal e-mail, principal days (on technology), staff development policy, grants, and intellectual property policies. Their study concluded that "although technology infrastructure is important, for educational technology to become an integral part of a school, technology leadership is even more necessary" (Anderson & Dexter, 2005, p. 74).

Conclusion

1. The demographic profile of the teacher respondents revealed that majority of the teachers are above 50 years old, females in terms of sex, and have been teaching for 16 to 20 years.
2. The demographic profile of the administrator respondents revealed that majority of the administrator are within the age group of 21 to 40 years old, are females in terms of sex, and have been in the administration for 16 to 20 years.
3. PLCs give teachers a simple approach to exchange best practices and come up with creative ideas to enhance instruction and raise student progress. For educators to exchange perspectives and believe that what they are doing in the classroom matters, effective communication is essential. These learning communities also help teachers think more critically on their own teaching methods and students' learning outcomes. When you meet with your PLC, you can share student progress, and when the data is shared between grade levels in the same building, administrators and teachers take responsibility for every student's education.
4. Equitable access to technology is essential for educational possibilities as well as helping students develop the knowledge and skills required to function as smart digital citizens. Students who do not have equal access to technology and information miss out on learning opportunities and may even have fewer options after graduating. This year's requirement for distance learning only serves to perpetuate this imbalance. More than just giving students access to devices and connectivity constitutes access to technology. Additionally, it entails ensuring that each student gets the chance to study with a tech-savvy instructor.
5. The teacher respondents strongly agree that the technology leadership preparedness of the school administrators is very high which is indicative of better technology integration in the school for these administrators. Leadership in technology is crucial for a number of reasons. Students who are learning to use new technology must first get accustomed to it. After that, an educational technology specialist should be able to help other faculty members understand the best ways to use the tools at their disposal. Using a whiteboard or an online course management system in the classroom may be unfamiliar territory for some educators. Teachers who are knowledgeable about this technology can help less experienced teachers get the skills they need to better serve their students in the classroom. In the classroom, educational technology can play a variety of roles. The use of technology in education is constantly expanding, ranging from course management software that provides an outline and links to dynamic learning resources to specialized applications that help students develop their background knowledge. The technology specialist can help with resource evaluation for each new application that is released.
6. All school improvement initiatives, including those that are technological in nature, are expected to be led by school administrators. In order to foresee, envisage, preserve flexibility, think strategically, and collaborate with others to initiate changes that will create a successful future for the organization, school leaders must



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The Exigency
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possess the fundamental skill of strategic leadership. Better strategic leadership can be attained through three key strategies: (1) developing a strategic vision based on data, informed assumptions, and the best-possible what-if analysis; (2) implementing and communicating the vision across the organization to clarify and align the role of each player and process that is strategically important; and (3) monitoring, reviewing, and updating the vision to ensure its ongoing strength, agility, and relevance.

7. Rich, realistic learning assignments that bring what is being taught to life are beneficial for all pupils. Without memorable encounters, school becomes monotonous and uninteresting. Student boredom and a sense of disconnection from school and their own learning might result from instruction that just emphasizes memorization and skill acquisition. Diverse forms of technology are used in the classroom to generate students who are actively engaged in learning goals. Technology integration also opens doors for differentiated instruction to meet each student's specific needs as an individual learner within a larger classroom environment.
8. The administrator respondents sees that the technology leadership preparedness of the school administrators is high and shows that the administrators are very much willing and prepared to integrate technology into the very core of the school. The ideas of leading and managing have been merged with regard to the practical integration of technology into schools to create the technological leadership techniques taken into consideration in this study. There are five major tasks and responsibilities in leadership that have an impact on both the performance and culture of schools: leader of learning, leader of student entitlement, leader of capacity building, leader of community, and leader of resource management. In their capacities, school administrators help all school stakeholders realize the full potential of ICTs in education by providing financial resources, technological infrastructure, social support, and moral uplift. Leadership in technology is a better indicator of technological achievements with relation to infrastructure and budget. Considering the multiple responsibilities that school leaders are expected to fulfill, technology leadership is therefore seen as being extremely important to ICT integration.
9. The factors age, sex, and tenure in the school do not affect the assessment of teacher respondents on the technology leadership preparedness of school administrators.
10. The factors age, sex, and tenure in the school do not affect the assessment of the administrator respondents on the technology leadership preparedness of school administrators.
11. Comparing the assessment of the administrator respondents and the teacher respondents on the technology leadership preparedness of school administrators, there is no significant difference in the assessment of the administrator respondents and the teacher respondents on the technology leadership preparedness of school administrators.

Recommendations

1. Improvement on the feedback mechanism may be consider for a more meaningful feedbacks and suggestions during teacher evaluation activities.
2. School leaders must improve in building trust and in giving full support to teachers' teaching work as this is the most important element in building relationships and improving learning.
3. Pay attention also in giving reward and recognition to teachers with outstanding performance and progress as part of the Principal's leadership in teaching.
4. Networking with other schools may be considered to share best practices to ensures that the schools continue to learn from each other to improve teaching, learning, and overall leadership activities.
5. Continuously promote positive school climate by creating and sharing tools and information for teachers, administrators, staff and parents as well.
6. School management should conduct more training and professional development for teachers related to the integration of technology in the teaching and learning process.
7. Pool of resources must be provided for teachers to help them in preparing instructional materials such as technical support from ICT technicians, laptops, and connectivity.
8. Teachers must always be updated and well versed about new technologies applicable in their subject or teaching learning process.
9. Conduct regularly a refresher or orientation courses for all teachers to learn how to integrate new technologies in an effective way in the teaching learning process.



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