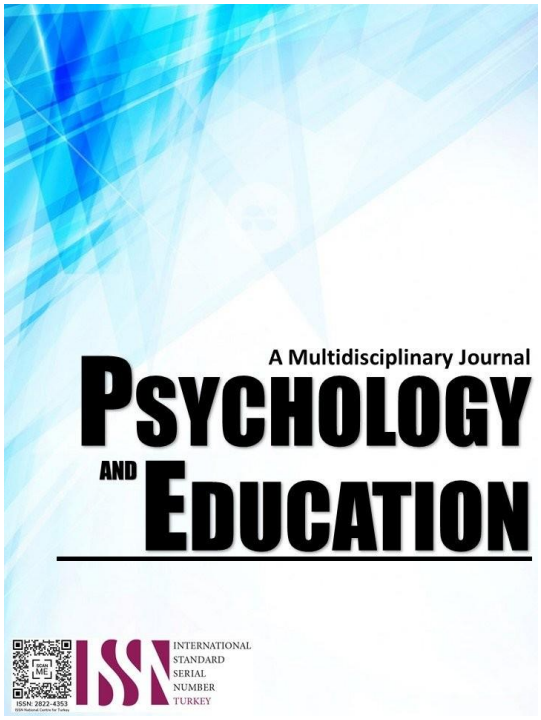
TECHNOLOGY LEADERSHIP COMPETENCE OF PUBLIC SCHOOL HEADS



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Research Article

Technology Leadership Competence of Public School Heads

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Abstract

This study dealt with the level of technological leadership competence of public school heads in the Schools Division Office of Urdaneta City for the School Year 2021-2022. A total of sixty-six (66) school heads of Schools Division Office of Urdaneta City served as the respondents. Data were obtained using a researcher-designed questionnaire checklist which was validated by experts in the field. Results revealed that the level of technology leadership competence of public school heads obtained a grand overall weighted mean of 4.48 denoting a transmuted rating of competent. Moreover, significant differences in the level of technological leadership competence of public school heads were indicated in profile variables sex, civil status, and relevant training at the regional, national, and international levels. Further, significant relationships in the level of technology leadership competence of public school heads are indicated in profile variables sex and relevant training at the regional, national, and international levels. It was recommended that the public school heads are encouraged to benchmark good practices of some schools in the region which are identified as schools of excellence to further hone their capabilities in leading and governing schools for continuous improvement.

Keywords: *technology leadership, leadership and governance, curriculum and learning, continuous improvement and accountability, resource management, developing self and others*

Introduction

At present, the education system all over the world is now embracing and infusing the tenets and ideals of the Fourth Industrial Revolution which it mostly prompted the call for the advancement of the digital economy, robotics and scientific advancement, and automation technology. Nevertheless, certain human-related abilities do remain relevant making them essential values of the human capital sought by the upcoming industrial era (Thannimalai and Raman, 2018). The school, as the institution that provides learning and produces a productive leader of the country, is at the height of facing the challenge of how it will fully infuse and embrace the advancement of technology. Thus, the challenge requires all administrators and teachers to adapt with an open mind nature to changes and advances brought by the rapid growth and development of technology. Administrators and teachers should prepare on how they will adopt, infuse, and use technology in the school setting and equip themselves with the latest trends in technology skills. Administrators are required to act as technology leaders and teachers as facilitators, to provide the skills and knowledge for 21st-century education (Roblyer and Doering, 2014).

An administrator's responsibility is to bring his teachers to adopt and infuse technology into the learning process as well as to improve their skills and proficiency in using technology in teaching in attaining the demand of the digital economy and workforce. Since technology is rampant and one of the fastest-growing in today's age, the need for administrators to adapt and apply technology developments is indispensable. In this sense, administrators are advised to develop their technology leadership to meet the new world order (Hacıfazlıoğlu, Karadeniz, & Dalgıç, 2011). For this reason, the new roles of administrators could be listed as seeking new technologies, establishing computer labs, preparing teachers to integrate ICT effectively across the curriculum, and infusing their leadership capabilities in technology integration. Seemingly, technology leaders in the school, who are the administrators, must be familiar with educational technology goals and standards. They must understand the benefits of how technology should be integrated into education and be able to develop staff development programs for teachers (Beytekin, 2014). A major component of technology leadership is how they will motivate their teachers to learn, use, and implement technology into their curriculum (Speedy and Brown, 2014). School heads' leadership predominantly concerns the use of technology aimed at teaching and learning in school, especially their role in managing ICT for instruction, learning, and other aspects related to ICT. Additionally, it has been found that technology leadership is particularly vital for teachers to implement and foster innovations attached to ICT (Geir, 2013). A school administrator is both a leader of change in enhancing school technology and an expert in technology leadership (Januszewski & Molenda,

2008).

Chin (2010) pointed out that technology leadership differs from traditional leadership theory in that it does not focus on the characteristics or actions of leaders but instead emphasizes that leaders should develop, guide, manage, and apply technology to different organizational operations to improve operational performance. Technology leadership is thus a type of functionally oriented leadership. Furthermore, the application of leadership skills necessary for school leaders to help their institutions apply technology in beneficial ways and prepare their schools for the 21st century is the meaning of technology leadership. Building administrators' technology leadership is essential in the school; administrators must model effective technology leadership (Chang, Chin, & Hsu, 2008). In the same context, not only the administrator should possess the capability and competence of technology infusion in the school but also the teachers. Teachers as the frontliners of the education sector should openly embrace the use of technology in teaching. Basseterre & Ndeto-Ivala (2017) showed that the use of technology may bring deep and meaningful collaborative learning. The result quietly contributed an excellent performance and a well-versed proficiency in technology. Moreover, the study by Hero (2019) reveals that teachers show proficiency in how they infuse technology in teaching inside the classroom and consider it as pedagogical innovation in the education paradigm.

Unfortunately, Apsorn, Sisan & Tungkunanan (2019) explained the problems in educational technology, most of which are administrators' lack of readiness to use information technology. Administrators still lack the readiness in learning technology and do not see the importance of innovation and information technology. Administrators lack knowledge, lack of experience, and expertise in using media to create innovative media and information technology and various elements for teaching and learning. Further, most of the school heads still lack qualities in ICT leadership, which is a major problem affecting educational administration and management at the level of the school and overall education. More so, a study conducted by Unal, et al. (2015) revealed that there was no significant difference in the technology leadership self-efficacy levels in terms of the school level. Seemingly, not only the administrators but also teachers had a problem when it comes to technology infusion. To wit, the study by Apau (2017) found that teachers lack technology content knowledge. For he to recommend that teachers and lecturers should continue to model the use of technology in teaching to update them on the technological and pedagogical content further.

In the Philippine education context, school leaders, who are the administrators and teachers, are now transforming themselves on what the Industrial Revolution 4.0 is pushing with to elevate the current education system in which their technology leadership is pointed-out on how it will further enhance the technical proficiency of their teachers.

The school head's diverse roles are part of a long tradition of expectations and responsibilities. Of recent vintage is the role of the school head as a technology leader. The special challenge for the school head is being a technology leader as well as encouraging the development of teacher and student technology leaders. The "insider" secret principals know: That technology came first and the school head as technology leader came later. Preparation experiences for the school head's role as a technology leader may be absent or fragmented. Often technology knowledge and skills are "learned by doing."

The school head's role as technology leader includes the following 10 tasks: (1)The school head should establish the vision and goals for technology in the school; (2)The school head should carry the technology banner in the school; (3) The school head should model use of technology; (4)The school head should support technology use in the school; (5) The school head should engage in professional development activities that focus on technology and integration of technology in student learning activities; (6) The school head should provide professional development opportunities for teachers and staff that emphasize use of technology and that facilitate integration of technology into student learning; (7) The school head should secure resources to support technology use and integration in the school; (8) The school head should be an advocate for technology use that supports student learning; (9) The school head should be knowledgeable and supportive of national technology standards and promote attainment of the standards in the school; (10) The school head should communicate the uses and importance of technology in enhancing student learning experiences to the school's stakeholders.

In a nutshell, the school head focuses on the integration of technology in the four (4) principles of school-based management along with leadership and governance, curriculum and learning, accountability and continuous improvement, and management of resources. Likewise developing oneself and others is

included as one principle of the national competency of school heads. Hence, it is, therefore, the intention of the study to assess and describe the level of technology leadership competence of school heads in the Schools Division Office of Urdaneta City.

Research Questions

This study dealt with the level of technology leadership competence of public school heads in the Schools Division Office Urdaneta City during the School Year 2021-2022. Particularly, it sought to answer the following problems:

1. What is the profile of the public school heads in terms of:
   1.1. age;
   1.2. sex;
   1.3. civil status;
   1.4. highest educational attainment;
   1.5. number of years as a school administrator;
   1.6. number of relevant training attended related to technology; and
   1.7. school category being managed?
2. What is the level of technology leadership competence of public school heads as perceived by themselves, teachers and PTA officers:
   2.1. leadership and governance
   2.2. curriculum and learning
   2.3. accountability and continuous improvement
   2.4. management of resources and
   2.5. developing self and others
3. Are there significant differences between the level of technology leadership competence of public school heads across profile variables?
4. Are there significant relationships between the level of technology leadership competence of public school heads and their profile variables?

Methodology

Research Design and Strategy

Research design is the plan and structure of investigation so conceived as to obtain answers to research questions. The plan is the overall scheme or program of the research (Robson, 2002). A descriptive research design was used in this study. The major purpose of descriptive research design is to provide information on the characteristics of a population or phenomenon (Mugenda & Mugenda, 2003).

Descriptive research is used as a precursor to quantitative research designs as it provides a general overview giving some valuable pointers as to what variables are worth testing quantitatively.

This study determined the level of technology leadership competence of public school heads in the Schools Division Office of Urdaneta City Division during the School Year 2021-2022. The results of the statistical analysis will be the basis of inferences, conclusions, and recommendations.

Population and Locale of the Study

In this study, a complete enumeration sampling was used. Through complete enumeration sampling, all members of the whole population are measured.

A complete enumeration-based survey is often preferred for certain types of data solely because it is expected that it will provide complete statistical coverage over space and time. Further, non-sampling errors are predominant here and thus affect the results of the required investigation significantly and drastically.

The participants of this study were the complete enumeration of 64 public elementary and secondary school heads from the Schools Division Office of Urdaneta City during the school year 2021-2022.

Data Gathering Tools

To draw an objective picture of the level of technology leadership competence of public school heads, a questionnaire checklist was made and used. The questionnaire consisted of two parts: Part l elicited the personal attributes of the respondents namely: age, sex, civil status, highest educational attainment, number of years as a school administrator, relevant training attended, and type of school being managed. Part II of the questionnaire checklist delved into the level of technology leadership competence of school administrators which is based on school management principles along leadership and governance, curriculum and learning, accountability and continuous improvement, management of resources, and development of self and others.

At the beginning of the questionnaire, the researcher provided brief instructions explaining the study's purpose. To secure honest responses from the respondents, anonymity and complete confidentiality were promised.

The researcher made the questionnaire checklist and

was subjected to validation by experts in the field , the SGOD Chief, Public Schools District Supervisor and SEPS, Planning and Research, The objective of it is to ensure that every question will be clearly understood and within the experience of the respondents. It is also to ascertain that the respondents will not find difficulty answering the questionnaire and that the data that will be gathered are valid. After the pooled judgment of the adviser and all the evaluators, the final copy of the questionnaire was distributed to the respondents.

Data Gathering Procedure

Before administering the research instrument, permission was secured from the Schools Division Superintendent and the Public Schools District Supervisor of the involved schools.

The researcher administered the questionnaire checklist to the respondents through google form. The responses and data collected were kept confidential by the researcher to ensure the highest degree of objectivity in response.

Results and Discussion

This chapter entails the presentation, analysis, and interpretation of data gathered in this study. The purpose of this part of this study is to answer the problems raised and to verify the research hypothesis formulated.

Profile of the Respondents

The respondents' profile is to provide and describe the background information about them as subjects of the study specifically in terms of age, sex, civil status, highest educational attainment, length of service as school head, school level being managed, number or relevant training attended and the school category being managed. Such profile variables were likewise used to describe and analyze the differences and relationships between the level of technology leadership competence of public school heads aligned with the school-based management.

Age. In terms of age, most of the public school heads belong to the age bracket 41-50 that is 29 or 45.3 percent, 19 or 29.7 percent belong to the age bracket 51-60, 8 or 12.5 percent belong to the age bracket 61, and above, 6 or 9.4 percent belong to the age bracket 21-30 while 2 or 3 percent belong to the age bracket 31-40 years old. This could mean that most of the public school heads are just in their prime age of maturity suited for active and effective leadership, while those who are young, they still have room for improvement to develop themselves professionally by improving their craft in leading and managing the school as regards to their technological leadership competence.

Sex. The same table shows that there are more female public school heads in the locale of the study that is 48 or 75 percent while 16 or 25 percent are males. This means that the male group of respondents is outnumbered by the female group.

Table 1. *Profile of the respondents*

Profile Variables		*Variable Category*	*F*	*%*
Age		21-30	6	9.4
		31-40	2	3.1
		41-50	29	45.3
		51-60	19	29.7
		61-above	8	12.5
Sex		Male	16	25.0
		Female	48	75.0
Civil Status		Single	10	15.6
		Married	54	84.4
Highest Educational Attainment		BSE/BEEd	4	6.3
		With MA Units	11	17.2
		MA Degree Holder	15	23.4
		With EdD/PhD Units	23	35.9
		EdD/PhD Degree Holder	11	17.2
Number of Years in Service		5-below	7	10.9
		6-10	19	29.7
		11-15	22	34.4
		15-20	4	6.3
		21-25	4	6.3
		26-30	8	12.5
Level being Manage		Elementary	43	67.2
		Secondary	21	32.8
Relevant Trainings Attended	Division	3-below	26	40.6
		4-6	22	34.4
		7-above	16	25.0
	Regional	3-below	50	78.1
		4-6	7	10.9
		7-above	7	10.9
	National	3-below	53	82.8
		4-6	7	10.9
		7-above	4	6.3
	International	3-below	56	87.5
		4-6	4	6.3
		7-above	4	6.3
School Category		Small	30	46.9
		Medium	27	42.2
		Large	7	10.9

Civil Status. It can be seen in the table that the majority of the respondents that is 54 or 84.4 percent are married while 10 or 15.6 percent are single.

Highest Educational Attainment. As shown in Table 1, in the preceding page, a great number of respondents are master's degree holders with EdD/PhD units that are 23 or 35.9 percent, while 11 or 17.2 percent are EdD/PhD degree holders, 11 or 17.2 percent have earned their MA units while 15 or 23.4 percent are MA degree holder and there is 4 or 6.3 percent who are baccalaureate degree holder which is the lowest level of the educational attainment. These data would imply that the respondents' educational qualifications are high with the impression that a greater number of them went beyond a bachelor's degree. Educational qualification is one of the essential factors in recruitment and/or promotion in the practice of the profession or career service. Likewise, growth in the profession can be done by upgrading oneself through formal schooling by attending post-graduate schooling in a reputable institution.

Length of Service as a Public School Head. As gleaned in the table, in the preceding page, a greater number of respondents have 11-15 years of experience as school heads that is 22 or 34.4 percent, 19 or 29.7 percent have 6-10 years of experience, 8 or 12.5 percent have 26-30 years of experience as school head, 7 or 10.7 percent have below 5 years of experience as school head, while 4 or 6.3 percent have both 15-20 and 21-25 years of experience as school head respectively. So that in terms of length of service as a school head, most of them have been in the service long enough to have developed the knowledge, skills, and abilities to be a school head.

School Level being Managed. As gleaned in the table, there is 43 or 67.2 percent of school heads manage the school at the elementary level while 21 or 32. 8 percent at the secondary level. This would imply that there are more elementary schools in the locale of the study compared with secondary schools.

Relevant Trainings Attended. The table also shows in page 2, the respondents' attendance to relevant training for professional growth and advancement. It is surprising to note that most of the respondents who have attended a minimum of 3 relevant trainings attended at all levels are 26 or 40.6 in the division level, 50 or 78.1 percent at the regional level, 53 or 82.8 percent at the national and 56 or 87.5 percent in the international level. It is seen in the table that the majority of the public school heads attended a minimum number of relevant training at the international levels considering that it has a higher number of points given when it comes to ranking for promotions. Further, it could be said that the rest enjoy the opportunity of attending seminars at one level or the other but not at all levels of training. It is imperative for public school heads that they attend training and seminars to keep them abreast with the trends in education, particularly in areas of school leadership and administration, and supervision. Attending training is also an opportunity for public school heads to widen their horizons as professionals as a result of their interaction with experts.

School Category being Managed. It is also noted from the table the school category being managed by the public school heads. As seen in the table in page 2, that more public school heads managed the medium schools that are 47 or 73.5 percent, 10 or 15.6 percent manage small schools and 7 or 10.9 percent managed large schools.

Level of Technology Leadership Competence of Public School Heads

The main purpose of this study is to determine the level of technological leadership competence of public-school heads. It was done by requesting them to rate themselves as well as their teachers and the PTA members/officers as regards their level of technological leadership competence along leadership and governance, curriculum and learning, accountability and continuous improvement, management of resources, and development self and others.

As shown in the Table 2 below, it presents the level of technological leadership competence of public school heads along with leadership and governance.

Table 2. *Level of technology leadership competence of public school heads along with leadership and governance*

Leadership and Governance As a school head, I integrate technology in…	*SH*	*T*	*PTA*	*OWM*
developing a plan guided by the school's vision, mission, and goal integrating technology through the leadership of the principal and the participation of community stakeholders.	4.56	4.39	4.52	4.49
leading the regular review and improvement of the school plan with the involvement of stakeholders using technology platforms like google meet, Microsoft teams, zoom, etc.	4.55	4.26	4.23	4.34
organizing a clear structure and work arrangements that promote shared leadership and governance through technology platforms	4.55	4.26	4.35	4.39
defining the roles and responsibilities of the stakeholders in the school governing council.	4.69	4.36	4.45	4.50
establishing a leadership network through technology that facilitates communication between and among community leaders for informed decision-making and solving school-community-wide learning problems.	4.59	4.41	4.39	4.46
assuming responsibility for the operation of a long-term program that addresses the training and development needs of school and community leaders.	4.47	4.34	4.29	4.37
recommending to higher authorities the enhancement of policies relevant to school operations based on implementation and review.	4.44	4.34	4.42	4.40
sharing with fellow school/heads best practices in the development and implementation of school plans aligned with institutional goals and policies through technology platforms	4.59	4.34	4.45	4.46
promoting a culture of research to facilitate data-driven and evidence-based innovation to improve school performance.	4.39	4.31	4.42	4.37
leading in the institutionalization of effective monitoring and evaluation processes and tools to promote learner achievement.	4.56	4.35	4.35	4.42
OWM	4.54	4.34	4.39	4.42

It can be gleaned from the table that the public school heads are competent in their level of technology leadership along with leadership and governance as signified by themselves, their teachers, and PTA members with an overall weighted mean of 4.42.

This could be interpreted to mean that the public school heads are knowledgeable in integrating technology in the development of their school plans aligned to the DepEd vision, mission, and goals inclusive with the participation of community stakeholders who are their partners in education. Through the use of technology in leading and governing the schools, they can use different platforms like google meet, Microsoft teams, zoom and others as their tools in organizing a vivid organizational structure and work arrangement that promote shared leadership and governance.

Through this, the public school heads easily established networks that facilitate communication between and among community leaders for informed decision-making and solving school-community-wide learning problems. In this case, a smooth flow of school governance is applied, thus, development and implementation of school plans aligned with institutional goals and policies are achieved.

It is surprising to note that the public school heads, teachers, and PTA members have the same transmuted rating of "Competent" on indicator no. 7 "recommending to higher authorities the enhancement of policies relevant to school operations based on implementation and review". This would imply that representatives from teachers and PTA are members in the implementation and review of the school plans hence the given rating. With the participation of the aforesaid representatives, it is conclusive that they are familiar with the different activities and processes involved in how the public school heads managed and governed the school with the integration of technology.

Furthermore, the same transmuted rating of "Competent" as rated by the respondents, teachers, and PTA is also seen in indicator no. 9 "Promoting a culture of research to facilitate data-driven and evidence-based innovation to improve school performance. This could mean that teachers and PTA are mindful of the research and innovation conducted in the school through the leadership of the public school heads. They are aware that the school has promoted a culture of research that facilitate data-driven and evidenced-based innovations that can improve school performance.

In the same vein, Dougherty et al. (2013), said that effective leadership and governance with the

integration of technology are necessary to promote a more cohesive and collaborative culture and ethos in schools and to establish good cooperation with the wider community. School leaders have a key role to play. Their good leadership, governance, and support from stakeholders are vital.

Table 3 at the next page, reflects the level of technology leadership competence of public school heads along with curriculum and learning.

As shown in the table, the public school heads are competent in their level of technological leadership along with curriculum and learning with a combined overall weighted mean of 4.48 as rated by themselves, the teachers, and the PTA. This would imply that the PTA members observed how the public school heads lead and govern the school when it comes to curriculum and learning the fact that parents are inquisitive to their children on how the school heads manage the curriculum and learning. The positive feedback taken from the children when it comes to the aforesaid area can be attributed to their competent transmuted rating. As such, parents are confident in the proper management of the curriculum and learning with the integration of technology by the school heads. Their perception is the same as what the school heads signified.

This rating is proof that the public school heads are doing well in integrating technology in providing the development needs of all types of learners to ensure their holistic growth and in nurturing their values consistent with the educational goals.

As regards to the rating given by the teachers, the conservative result would mean that the public school heads are competent in ensuring that an evolving learning environment sustain health and well-being of the learners and school personnel considering that policies and procedures on learning environment that promote inclusiveness and this can be attributed to the efficient and responsive management of learning structures that leads to the positive development and school goals.

Further, the respondents, teachers and PTA members are one in saying that when it comes to curriculum and learning, the schools are competent in line with indicator no. 7 that is “equipping learners with essential knowledge, skills and values to assume responsibility and accountability when it comes to learning outcomes”.

Table 3. *Level of technology leadership competence of public school heads along curriculum and learning*

Curriculum and Learning *As a school head, I integrate technology in…*	*SH*	*T*	*PTA*	*OWM*
providing development needs of all types of learners in the community using technology learning platforms	4.56	4.32	4.61	4.50
implementing curriculum that is localized to make it more meaningful to the learners and applicable to life in the community.	4.64	4.43	4.48	4.52
developing methods and materials for developing creative thinking problem-solving.	4.47	4.39	4.35	4.40
conducting regular collaborative monitoring with the community using appropriate technology tools to ensure the holistic growth and development of the learners and the community.	4.59	4.39	4.35	4.45
reviewing continuously the appropriate assessment tools for teaching and learning for improved assessment results and attainment of the relevant life skills.	4.42	4.37	4.48	4.43
nurturing values and environments that are protective of all children and demonstrate behaviors consistent with the organization's vision, mission, and goals.	4.69	4.44	4.58	4.57
equipping learners with essential knowledge, skills and values to assume responsibility and accountability for their own learning.	4.52	4.47	4.52	4.50
promoting and efficient and responsive management of physical and IT enabled learning structures that result to positive development of other schools.	4.52	4.39	4.35	4.42
involving stakeholders in ensuring that an evolving learning environment sustain health and well-being of learners and school personnel.	4.64	4.47	4.55	4.55
implementing policies and procedures on learning environment that promote inclusiveness.	4.56	4.41	4.45	4.47
OWM	4.56	4.41	4.47	4.48

This would also mean that the educational needs of all types of learners are being met as shown by continuous improvement on learning outcomes and products of learning. They also believed that the localized curriculum is implemented and monitored closely to ensure that it makes learning more meaningful and pleasurable, produces desired learning outcomes and directly improved community life. Aside from this, they also perceived that ineffective approaches are replaced and innovative ones are developed.

According to Beytekin (2014), technological leadership in curriculum and learning provides teachers, students, school leaders and community stakeholders with a measurable plan and structure for delivering a quality education. He also mentioned that curriculum identified learning outcomes, standards and core competencies that students must demonstrate before advancing to the next level. In addition, it must be carefully designed and well-executed curriculum that plays a significant role in the success of the school and its students and teachers. Strong curricular design

when delivered by well prepared and qualified educators like the school heads ensure that students can achieve the appropriate learning outcomes.

As shown in the table 4 below, the level of technological leadership competence of public school heads along continuous improvement and accountability. As seen in the table 4 at the preceding page, the public school heads obtained a combined overall weighted mean of 4.50 denoting a transmuted rating of "Highly Competent". Both the school head and PTA members rating bear the same equivalent transmuted rating of Highly Competent while the teachers rated their school heads "Competent" along technology leadership in continuous improvement and accountability.

The Highly Competent rating of parents on the level of technological leadership of school heads along continuous improvement and accountability would mean that the shared and participatory process of determining roles, responsibilities and accountability of stakeholders in managing and supporting education are in placed through this case, the school community stakeholders continuously and collaboratively enhance accountability system, processes, mechanisms and tools in the operation of an appropriate accountability system.

On the other hand, the teachers give a "Competent" transmuted rating along this area. The slight difference in the numerical rating to achieve a Highly Competent mark would mean that they perceived their school heads to recognize achieved school goals based on a collaboratively developed performance accountability systems that could addressed gaps and issues through appropriate action. Further, the school heads fairly ensure the management structures and mechanisms that are responsive to the emerging learning needs and demands of the community.

Moreover, in terms of the "Highly Competent" overall weighted mean in the area of accountability and continuous improvement would imply that the school heads are equipped with the knowledge, skills and abilities in the achievement of schools aligned with the developed performance assessment as basis for monitoring an devaluating systems, thus, providing a technical assistance in managing and supporting education.

Table 4. *Level of technology leadership competence of public school heads along continuous improvement and accountability*

Accountability and Continuous Improvement *As a school head, I integrate technology in…*	*SH*	*T*	*PTA*	*OWM*
implementing shared and participatory processes of determining roles, responsibilities and accountabilities of stakeholders in managing and supporting education.	4.52	4.41	4.52	4.48
recognizing achievement of goals based on a collaboratively develop performance system, gaps are addressed through appropriate action.	4.52	4.36	4.52	4.46
ensuring the management structures and mechanisms that are responsive to the emerging learning needs and demands of the community.	4.55	4.44	4.45	4.48
developing accountability assessment criteria and tools, feedback mechanisms and information, collection and validation techniques and processes that are inclusive.	4.59	4.35	4.48	4.48
reviewing appropriate assessment tools for teaching and learning for an improved learning outcomes.	4.64	4.40	4.61	4.55
practicing performance accountability by giving recognition an incentive system.	4.52	4.34	4.58	4.48
exercising transparency and accountability in carrying out one's functions.	4.69	4.48	4.58	4.58
publishing school performance that is validated through community satisfaction surveys.	4.64	4.39	4.48	4.50
disseminating to internal and external stakeholders the documents of targets on school performance indicators are reference for their support to school.	4.69	4.45	4.48	4.54
developing performance assessment as basis for improving monitoring, and evaluating systems, providing technical assistance, and recognizing and refining goals.	4.59	4.41	4.42	4.47
OWM	4.59	4.40	4.51	4.50

Schrum et al (2011), stressed that the goal of continuous improvement and accountability system is to leverage multiple inputs and processes to achieve desired outcomes. He further stressed that there will always be a room for improvement but success criteria can serve as guide for system development that can encourage schools to focus their efforts on improving performance above all things. In addition, continuous improvement also require schools to have the on staff knowledge, skills and expertise needed to improve educational results and sustain improvement overtime.

Table 5 as shown in the next page, presents the level of technological leadership competence of public school heads along management of resources.

As reflected in the table, the level of technological leadership competence of public school heads along

management of resources obtained a combined rating of an overall weighted mean of 4.50 denoting a "Highly Competent" transmuted rating where the public school heads rated themselves 4.63, while the teachers and PTA rated the school heads with an overall weighted mean of 4.45 and 4.43 respectively.

It can be noted in the table that the public school heads rated themselves "Highly Competent" along this area of management of resources in technology leadership. This would imply that the public school heads perform well along this area. This can be attributed to the regular resource inventory that is collaboratively undertaken by them, as well as the learning facilitators and community stakeholders as basis for resource allocation and mobilization.

Table 5. *Level of technological leadership competence of public school heads along management of resources*

Management of Resources *As a school head, I integrate technology in…*	*SH*	*T*	*PTA*	*OWM*
engaging stakeholders in a collaborative process to make decisions on resources allocation and mobilization.	4.64	4.50	4.39	4.51
ensuring timely and need-based planning and resources programming for an improved implementation of educational plan.	4.73	4.49	4.35	4.53
sustaining the implementation and improvement of a collaboratively developed resource management system.	4.64	4.45	4.42	4.50
developing a system of monitoring, evaluation and reporting for resource management.	4.69	4.42	4.45	4.52
establishing a system of partnership managed and sustained by stakeholders for continuous improvement of resources management.	4.52	4.43	4.39	4.44
executing the best practices and innovations resulting in improved school performance.	4.64	4.42	4.42	4.49
sustaining excellent school performance in the utilization of school funds.	4.69	4.46	4.42	4.52
managing resources with transparency effectiveness and efficiency.	4.69	4.46	4.45	4.53
undertaking own school-based procurement including IMTEX furniture and equipment, School Building Program subject to DepEd wide guidelines.	4.44	4.38	4.52	4.44
recording all resources and funds made available to school like Adopt-A-School donations, PTA support and MOOE.	4.64	4.46	4.45	4.52
OWM	4.63	4.45	4.43	4.50

Through this practice, resource inventories are systematically developed and stakeholders are engaged in a collaborative process to make decisions on resource allocation and mobilization. In addition, the public school heads have a regular dialogue for planning and resource programming that is accessible and inclusive, continuously engage stakeholders and support implementation of community education plan. Public school heads are also confident with the community resources management system that drives appropriate behaviors of the stakeholders to ensure judicious, appropriate and effective use of resources. Through this, they can sustain the implementation and improvement of a collaboratively developed periodically adjusted and constituent resource management system.

On the other hand, the teachers and PTA rated the public school heads with a "Competent" transmuted rating with a slight difference from the ratings of the public school heads. This could mean that there are aspects that are internal in nature that are not familiar to the teachers and PTA along this area of functions of the public school heads. As such the aforesaid respondents are only focused on the regular monitoring, evaluation and reporting processes of resource management that are implemented in the school.

At any rate, the Highly Competent over all transmuted rating is an indication that the public school heads are performing well in this area of their function as leaders in school based management. According to Tirek (2015), resource management ensures that internal and external resources are used effectively on time and the budget. When it comes to education, resource management involves making a strategic plan for organizing and using school resources. He further stressed that numerous problems are facing many school systems in developing countries today and human financial and material resources are scarce and therefore strategic management of all resources is crucial for achieving the goals of the educational system and the school organizations.

Table 6 in the next page, shows the level of technological leadership competence of public school heads along developing self and others.

It can be gleaned in the table that public school heads obtained a combined overall weighted mean of 4.49 described as "Competent". All the respondents have the same transmuted rating along this area of technological leadership where public school heads rated themselves 4.48 while the teachers and the PTA members rated the school heads 4.48 and 4.49.

Table 6. *Level of technological leadership competence of public school heads along developing self and others*

Developing Self and Others *As a school head, I integrate technology in…*	*SH*	*T*	*PTA*	*OWM*
reflecting on the attainment of personal and professional development goals.	4.46	4.46	4.48	4.47
initiating professional reflections and promote learning opportunities with other school heads to improve practice.	4.49	4.46	4.48	4.48
engaging actively in professional networks and within and across schools to advance knowledge, skills and practice.	4.58	4.46	4.58	4.54
monitoring and evaluating with school personnel the implementation of the performance management system to ensure career advancement for individual school personnel and to improve office performance.	4.56	4.44	4.45	4.48
monitoring and evaluating the implementation of professional development initiatives in enhancing strengths and in addressing performance gaps among school personnel.	4.44	4.47	4.48	4.46
capacitating individuals and teams to effectively perform leadership roles and responsibilities in fostering shared governance and accountability.	4.54	4.43	4.45	4.47
integrating laws, policies, guidelines, and issuances on the rights, privileges and benefits of school personnel and school programs, projects and activities to ensure their general welfare.	4.47	4.44	4.61	4.51
working with school personnel to encourage stakeholders to support the implementation of school rewards system.	4.42	4.50	4.55	4.49
recognizing and motivating learners, school personnel and other stakeholders to sustain exemplary performance and/or continued support.	4.39	4.46	4.52	4.46
providing opportunities to individuals and teams in performing leadership roles and responsibilities	4.49	4.44	4.65	4.53
OWM	4.48	4.46	4.53	4.49

This combined rating of "Competent" would imply that the public school heads are aware of their roles in initiating professional reflections and in promoting learning opportunities with other school heads to improve practice. They also engage actively in professional networks and within and across schools to advance knowledge, skills, and practice.

Furthermore, they capacitate individuals and teams to effectively perform leadership roles and responsibilities in fostering shared governance and accountability. As educational leaders, they integrate laws, policies, guidelines and issuances on the right privileges and benefit of school personnel and school programs, projects and activities to ensure their general welfare. They also work with school personnel to encourage stakeholders to support the implementation of school reward system and in recognizing and motivating learners, school personnel and other stakeholders to sustain exemplary performance and continued support. Moreover, they provide opportunities to individuals and teams in performing leadership roles and responsibilities.

Banoglu (2011), stressed that developing self and other is a behavior that focuses on demonstrating commitment to on-going professional development both your own and that of the people around you. He further said that fundamentally developing self and others is looking at whether you are content with the status quo or if you are always looking for ways to improve both yourself on the job learning and your team and wider organization. Likewise, developing others for leadership, you can affect the future growth of your organization.

Table 7 in the next page, presents the summary of the level of technological leadership competence of public school heads.

Table 7. *Summary of the level of technological leadership competence of public school heads*

Area of Technology Leadership Competence	*OWM*
Leadership and Governance	4.42
Curriculum and Learning	4.48
Accountability and Continuous Improvement	4.50
Resource Management	4.50
Developing Self and Others	4.9
OWM	4.48

As shown in the table above, the overall level of technology leadership competence of public school heads obtained a grand overall weighted mean of 4.48 denoting a "Competent" transmuted rating where continuous improvement and accountability and management of resources ranked the highest with the same OWM of 4.50 while leadership and governance ranked the lowest with an OWM of 4.47. This could be interpreted to mean that the public school heads perform well in continuous improvement and accountability and management of resources. It can be said that the public school heads have master their craft of managing their resources judiciously and developing programs that can lead to continuous improvement of the school.

Though leadership and governance ranked the lowest, a very slight difference is noted compared to management or resources that catapulted a competent transmuted rating. This would imply that the public school heads has still room for improvement in developing a clear structure and work arrangement that promote shared leadership and governance through technology platforms in order to promote learners achievement and improve school performance.

Summary of ANOVA Results for Mean Difference in the Level of Technology Leadership Competence of Public School Heads across their ProfileVariables

Relative to the problems of this study which sought to determine the level of technology leadership competence of public school heads, the Analysis of variance (ANOVA) was used and computed and is indicated by F-values with its corresponding significance level. This was done for the purpose of making a more in-depth analysis of data gathered in this study whereby the school heads were compared to their level of technology leadership and their profile variables.

Table 8 present the ANOVA with their corresponding values of significance.

Based on the summary table for ANOVA the mean difference of the level of technology leadership competence of public school headers across profile variables are clearly indicated. Generally, most of the data do not indicate difference among the public school heads technology competence across their profile variables.

Therefore, the null hypothesis which states that there are no significant differences in the level of technology leadership competence of public school heads across their profile variables age, highest educational attainment, length of service and relevant trainings attended in the division levels is accepted at .05 level of significance. These ANOVA results yielded would imply that the public school heads do not vary in their level of technology leadership competence.

On the other hand, the profile variables, relevant trainings attended, in the regional, national and international levels mark differences in the level of technology leadership competence of public school heads. Therefore, the null hypothesis which states that there are no significant differences in the level of technology leadership competence of public school heads is rejected at .05 level of significance. These ANOVA results yielded would imply that the public school heads vary in their level of technology leadership competence across aforesaid variables.

Table 8. *Significance of the mean difference in the level of technological leadership competence of public school heads across profile variables.*

Profile Variables	*Sources of Variation*	*Sum of Squares*	*df*	*Mean Square*	*F*	*Sig.*
Age	Between Groups	1.372	4	.343	1.989	.108
	Within Groups	10.175	59	.172		
	Total	11.547	63			
Highest Educational Attainment	Between Groups	.922	4	.231	1.280	.288
	Within Groups	10.625	59	.180		
	Total	11.547	63			
Length of Service	Between Groups	.891	5	.178	.970	.444
	Within Groups	10.656	58	.184		
	Total	11.547	63			
RT_Division	Between Groups	.456	2	.228	1.255	.292
	Within Groups	11.091	61	.182		
	Total	11.547	63			
RT_Regional	Between Groups	4.319	2	2.160	18.226	.000
	Within Groups	7.228	61	.118		
	Total	11.547	63			
RT_National	Between Groups	1.573	2	.786	4.809	.011
	Within Groups	9.974	61	.164		
	Total	11.547	63			
RT_International	Between Groups	3.224	2	1.612	11.813	.000
	Within Groups	8.323	61	.136		
	Total	11.547	63			

The mean differences of the respondents' technological leadership competences were further determined in order to test as to what categories of the respondents number of relevant trainings attended.

The table for Post-Hoc (Scheffe) Test is provided in Table 9. The table shows the comparison between the number of relevant trainings attended in the different levels by the respondents in technological leadership. It can be clearly observed that there are really significant values marked with asterisks indicative of significant differences at .05 alpha level. So that the number of relevant trainings attended is very true and strong positive indicator of non-comparability of the respondents in their technological leadership. This means that dependent upon the respondent number of relevant trainings which apparently vary from one to the other e.g. between below 3 trainings compared to 4-6 and 7 and above in the regional level, 3 trainings and 4-6 trainings in the national level and 3 trainings compared to 4-6 number of trainings and 7 and above which are found to have significant differences goes with their level of technology leadership. As much the number of relevant training have a high impact in the technological leadership of school heads. This would imply that relevant trainings on technology leadership by the respondents would greatly help them in school governance.

Table 9. *Post-hoc (Scheffe) test for the Significance of the Mean Differences across Relevant Trainings Attended*

Relevant Trainings	*(I) Relevant Training*	*(J) Relevant Training*	*Mean Difference (I-J)*	*Std. Error*	*Sig.*	*95% Confidence Interval*	
						Lower Bound	*Upper Bound*
Regional	3-below	4-6	.83783*	.13891	.000	.4893	1.1864
		7-above	.14069	.13891	.601	-.2079	.4892
	4-6	7-above	-.69714*	.18400	.002	-1.1588	-.2355
National	3-below	4-6	.48431*	.16262	.016	.0763	.8923
		7-above	.23717	.20968	.531	-.2889	.7633
	4-6	7-above	-.24714	.25345	.624	-.8831	.3888
International	3-below	4-6	.91143*	.19118	.000	.4317	1.3911
		7-above	.24143	.19118	.455	-.2383	.7211
	4-6	7-above	-.67000*	.26120	.044	-1.3254	-.0146

Table 10 in the next page, shows the t-test results on the significant difference on the level of technology leadership competence of public school heads across profile variable sex, civil status and school level managed.

Table 10. *t-test results on the significant difference on the level of technological leadership competence of public school heads across profile variable sex, civil status and school level managed*

Profile Variables	*Mean Difference*	*t-value*	*Sig.*
Sex	-.31583	-2.678	.009
Civil Status	-.28133	-1.951	.056
Level being Managed	.18909	1.682	.098

It can be gleaned from the table that the overall significant value indicators of .056 and .098 across the profile variable civil status and school level being managed are higher than the significant value of .05 level of significance. This significant difference warrants the acceptance of the null hypothesis which states that there are no significant differences in the level of technology leadership competence of public school heads across said variables. It can be said that profile variables civil status and school level being managed by the public school heads are not associated on the level of technology leadership competence of public school heads. In other words, it is not comparable. It means that regardless of said profile of the respondents they can have technology leadership competence in leading the and managing the school.

On the other hand, the profile variable sex indicating a significant values of .009 is lower that the significant values of .05 level of significance. This significant difference warrants the rejection of the null hypothesis which states that there is no significant difference in the level of technology leadership competence of public school heads across the profile variable sex. It can be said that the profile variable sex has something to do with the level of technology leadership competences of public school head.

Relationship Between the Level of Technological Leadership Competence of Public School Heads and Their Profile Variables

Table 11 shows the Pearson-r correlation between the level of technology leadership competence of public school heads and their profile variables.

It can be observed in the table that the Pearson-r values of the paired independent and dependent variables age, civil status, highest educational attainment, length of service, level of school managed and relevant training in the division do not have any significant relationships to the respondents' level of technology leadership competence of public school heads. This means that such profile variables of the respondents do not affect to their level of technology leadership competence.

Table 11. *Pearson-r correlation between the level of technological leadership competence of public school heads and their profile variables*

Profile Variables	*Pearson Correlation*	*Sig. (2-tailed)*
Age	-.028	.828
Sex	.322**	.009
Civil Status	.240	.056
Highest Educational Attainment	-.203	.107
Length of Service	.159	.211
School Head in	-.209	.098
Relevant Training_Division	-.194	.125
Relevant Training_Region	-.310*	.013
Relevant Training_National	.-285*	.023
Relevant Training_International	-.329**	.008
School Category	.177	.162

In this regard, the null hypothesis which states that

there are no significant relationships between the aforementioned variables and level of technology leadership of public school heads at .05 level of significance is accepted. In other words, the respondents' level of technology competence can't be affected by the aforesaid variables.

On the other hand, the profile variables sex and relevant trainings attended in the regional, national and international level indicate significant relationships with .009, .013, .023, and .008 respectively. So that the null hypothesis which states that there is no significant relationship between the level of technology leadership of public school heads and the aforecited variables is rejected at .05 level of significance. As such, the profile variables sex and the relevant trainings attended by the public school heads in the regional, national and international levels are determinant factors in the level of technology leadership competence of public school heads.

Conclusion

Based on the aforementioned findings in this study, the following conclusions were formulated;

1. The public school heads widely vary in their profiles and at certain instances their variations are in extreme cases and are distinctively female dominated group of respondents.
2. The public school heads in this study are performing impressively more than well enough in their technological leadership but if excellence is yet possible their present level of technological leadership competence is a stepping stone towards the highest level.
3. The public school heads are significantly comparable in their level of technology leadership competence in terms of profile variables sex, civil status, and relevant trainings attended in the regional, national, and international level.
4. The public school heads level of technological leadership competence are associated with the profile variables sex and relevant trainings in regional, national and international levels.

On the basis of the salient findings in this study and the conclusions drawn, the following are hereby recommended:

1. Since relevant trainings attended in the regional, national and international levels are significantly related in the level of technological competence of school heads, concerned public school heads should take their own initiative in attending seminars and trainings specifically in technological leadership in the regional, national and international levels to further hone their knowledge, skills and abilities in governing schools.
2. The public school heads should always aspire for an excellent level of their technological leadership competence for an effective and efficient achievement of organizational goals.
3. Since leadership and school governance in the area of technological leadership obtained the lowest rating among the five dimensions of technology leadership, the public school heads are encouraged to benchmark good practices of some schools in the region which are identified as schools of excellence to further improve their capabilities in leading and governing schools for continuous improvement.
4. Further research maybe conducted on the public school heads' technological leadership competence on teachers' technology literacy.

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