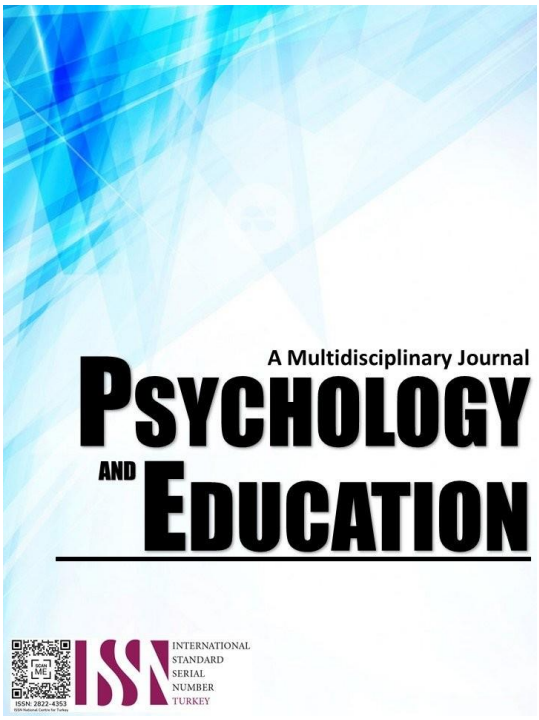
PRINCIPALS' LEADERSHIP ON TECHNOLOGY INTEGRATION AND ITS EFFECT TO SCHOOL PERFORMANCE: BASIS FOR TRAINING DEVELOPMENT PROGRAM



PSYCHOLOGY AND EDUCATION: A MULTIDISCIPLINARY JOURNAL

Volume: 27
Issue 7
Pages: 731-741
Document ID: 2024PEMJ2599
DOI: 10.5281/zenodo.14043082
Manuscript Accepted: 10-07-2024

Psych Educ, 2024, **27**(7): 731-741, Document ID:2024PEMJ741, doi:10.5281/zenodo.14043082, ISSN 2822-4353

Research Article

Principals' Leadership on Technology Integration and its Effect to School Performance: Basis for Training Development Program

Princess B. Pacon,* Melchor Espiritu
For affiliations and correspondence, see the last page.

Abstract

This study aimed to determine the principals' leadership on technology integration and its effect on school performance, which served as the basis for training development program during the school year 2023-2024. The perception of the respondents on the leadership of school principals on technology integration. With respect to the Respondents' Perceptions on the Leadership of Principals on Technology Integration, the administrator-respondents obtained a grand weighted mean of 3.60, while the teacher-respondents obtained 3.50, which were both verbally interpreted as Strongly Agree. Significant difference between the perceptions of the two groups of respondents on the principals' leadership on technology integration. There is no significant difference between the perceptions of the two groups of respondents except for technological competence, innovativeness, and effect on teachers' performance. The performance ratings of the schools during the school year 2022-2023. The performance ratings of the schools during the school year 2022-2023 are 4.36, 4.48, 4.39, 4.42, and 4.39, respectively, and they were given an adjectival rating of Very Satisfactory. Significant correlation between the principals' leadership on technology integration and the school performance. There is a very low significant correlation between the principals' leadership on technology integration and school performance.

Keywords: *program, development, integration, leadership, principal*

Introduction

Technological developments have found their way into almost every area of our lives, and integrating technology into education is inescapable. Given the important place that technology has come to occupy in our lives, schools have a great responsibility to educate individuals capable of effectively using technology. Today, educational leaders are making the necessary investments to ensure that technology is integrated into the teaching-learning process. Educators, teachers, and researchers consider technology to be an indicator of high quality in education.

The developments in information and communication technology are occurring at a dizzying pace, with new products appearing on the market every day, and computer teachers are responsible for closely following these technological developments and seeing that they are used effectively in the teaching-learning environment.

School leaders are responsible for encouraging and supporting teachers to integrate technology in learning and teaching, especially when the Internet of Things is rapidly making its way into classrooms in ways never imagined. With Smart whiteboards and alternative interactive digital media being widely utilized during interactive learning in classrooms, school leaders have to keep abreast with the new technologies. Thus, school leadership preparatory training should include technology to produce future-ready school principals who can lead teachers and students as learning experiences become virtual and ubiquitous. School technology leaders aim to propel learning and teaching forward toward student achievement. In terms of technology integration, the main responsibilities of managers, as leaders, school administrators, and computer teachers in learning organizations include encouraging learning and securing the development of a rich learning environment to present opportunities for teachers and students to obtain new and correct information. Moreover, the need for leaders to agree to changes and share responsibilities if a school is to become a learning organization must be highlighted.

Cakir and Yildirim (2017) stated that integrating technology into the curriculum plays an important role in creating a rich teaching and learning environment. In fact, integrating new technological developments into education should enable students to use new technologies just as easily as they use other educational tools such as books, maps, and pencils. Whereas computer teachers have a particularly important role in integrating new developments into the educational environment, administrators are responsible for prioritizing the use of new technologies in the schools and ensuring that computer teachers are provided with the support they require.

In a learning organization, computer teachers and administrators are in leadership positions about the use of technology in schools. According to Fullan (2017), an effective school leader should possess characteristics such as an understanding of change, an openness to innovation, and a willingness to encourage learning and teaching. Not only should administrators expect teachers and students to use technology in their teaching and learning activities, as leaders in innovation, but administrators should also embrace technology and use it as part of their school's investment in technology. In other words, a technology leader should model the use of technology for other teachers and students. By keeping an open mind regarding technology and innovation and making use of new technologies themselves, computer teachers and administrators will be better able to shape the effective use of technology in their schools.

Through these perspectives, the researcher was urged to conduct a study on the school administrators' leadership on technology

integration in public elementary schools and its effect on school performance to determine if the school administrators can implement effective leadership in technology integration for both teachers and students; to determine if the school administrators can identify the technology-related educational needs and technology design.

Research Questions

This study aimed to determine the principals' leadership on technology integration and its effect to school performance which served as basis for training development program during the school year 2023-2024. More specifically, it sought answers to the following questions:

1. What is the perception of the school administrators themselves and the teachers on the leadership of school principals on technology integration in terms of the following:
    1.1. Technological Competence;
    1.2. Technology Knowledge;
    1.3. Ability to use Computers;
    1.4. Innovativeness;
    1.5. Technical Support;
    1.6. Frequency of use;
    1.7. Teachers' Attitude; and
    1.8. Effect to Teachers' Performance?
2. Is there a significant difference between the perceptions of the two groups of respondents on the principals' leadership on technology integration with respect to the above-cited aspects?
3. What are the performance ratings of the school during the school year 2022-2023?
4. Is there a significant correlation between the principals' leadership on technology integration and the school performance?
5. Based on the results of the study, what training development program can be proposed?

Methodology

Research Design

The method of research that was used in the study was the descriptive type. Kranfel (2018) defines the descriptive survey research design as a process that deals with the relationships between variables, the testing hypothesis, and the development of generalization principles of theories that have universal validity.

A survey research design is a strategy that enables one to study naturally occurring phenomena and answer questions about the distribution of and relationships among characteristics of people as they exist in their natural setting. The data will be collected from at least a part of the population to assess the incidence, distribution, and interrelations of phenomena and variables as they occur in people's lives.

The researcher, therefore, would be able to describe the public elementary principals' leadership on technology integration in their schools and its effect on school performance from the survey, which made the design appropriate for the study.

Respondents

The researcher used purposive sampling. This was conducted in Libmanan South District, Division of Camarines Sur. The respondents of the study were composed of teachers and school administrators.

Instruments

A questionnaire was used as an instrument for the data collection.Likert scale was used in this research study. It is a rating scale used to measure opinions, attitudes, or behaviors. It consists of a statement or a question, followed by a series of five statements. The respondents chose the option that best corresponds with how they feel about the statement or question.

Procedure

Permission from the concerned authorities was sought before the conduct of the study. Upon approval of the schools division superintendent and the principal, the questionnaire – checklists were administered to the school administrator and teacher respondents of the selected public elementary schools in the Division of Camarines Sur and were personally retrieved by the researcher.

Data Analysis

Frequency and Percentage. These were used to determine the number of school administrator and teacher respondents per school.

t-test. This was used to find out if there is a significant difference between the perceptions of the two groups of respondents on the principals' leadership on technology integration with respect to the above-cited aspects.

Pearson r Correlation. This was used to find out if there is a significant relationship between the principals' leadership on technology

integration and school performance.

Ethical Considerations

This study shall protect the privacy of the respondent and shall not in any means expose confidential information.

Results and Discussion

This part of the study provided the presentation, analysis, and interpretation of the gathered data from the questionnaires answered by the respondents in accordance with the specific questions posited on the objectives of the study.

Perception of the School Administrators and the Teachers on the Leadership of School Principals on Technology Integration

Technological Competence

Table 1. *Respondents' Perceptions on the Leadership of Principals on Technology Integration as Regard Technological Competence*

Technological Competence	*Administrators*			*Teachers*		
	WM	*SD*	*VI*	*WM*	*SD*	*VI*
1. supply the teachers with the required technology instructions.	3.64	0.48	SA	3.29	0.45	SA
2. help develop the teachers' technology skills through strategies of educational advancement.	3.59	0.49	SA	3.43	0.50	SA
3. capacitate the teachers through attending ICT meetings among peers and other colleagues.	3.47	0.50	SA	3.34	0.47	SA
4. offer assistance to the teachers in terms of gaining technological expertise and advancement.	3.39	0.49	SA	3.22	0.42	SA
5. help the teachers to adapt/apply best practices on technology integration.	3.51	0.50	SA	3.35	0.48	SA
Average Weighted Mean	3.52		SA	3.33		SA
Standard Deviation	0.49			0.46		

Note: 1.00 – 1.75 (SD); 1.76 – 2.50 (D); 2.51 – 3.25 (A); 3.26 – 4.00 (SA)

As presented in Table 1, the administrator-respondents got an average weighted mean of 3.52, while the teacher-respondents got 3.33, both verbally interpreted as Strongly Agree.

This explains that the principals have demonstrated expertise in helping the teachers become oriented and capacitated with various information on technology. It also implies that the principals are technologically competent, as seen and agreed in the responses of the two groups of respondents.

Technology Knowledge

Table 2. *Respondents' Perceptions on the Leadership of Principals on Technology Integration as Regard Technology Knowledge*

Technology Knowledge	*Administrators*			*Teachers*		
	WM	*SD*	*VI*	*WM*	*SD*	*VI*
1. share essential ideas to the teachers and staff in order to help them solve problems/issues on technology use.	3.65	0.48	SA	3.76	0.43	SA
2. equip the teachers and staff with updated technology Information.	3.70	0.46	SA	3.77	0.42	SA
3. elucidate technology information comprehensively for the teachers and other staff to avoid confusion on the effective use of technology.	3.72	0.45	SA	3.70	0.46	SA
4. post in social media varied related issues /concerns and updates to inform teachers and help them find solutions if ever similar concerns arise.	3.71	0.45	SA	3.75	0.43	SA
5. craft plans and programs that address the identified needs of teachers and other staff on technology use.	3.80	0.40	SA	3.69	0.46	SA
Average Weighted Mean	3.72		SA	3.73		SA
Standard Deviation	0.45			0.44		

Note: 1.00 – 1.75 (SD); 1.76 – 2.50 (D); 2.51 – 3.25 (A); 3.26 – 4.00 (SA)

As displayed in Table 2, the administrator-respondents got an average weighted mean of 3.72, while the teacher-respondents got 3.73 verbally interpreted as Strongly Agree.

This implies that two groups of respondents have a parallel view of the indicators set under technology knowledge. It further implies that the principals have shown willingness and interest in empowering and capacitating the teachers, especially in giving updated information on technology.

Ability to Use Computers

As shown in Table 3, the teacher-respondents got an average weighted mean of 3.45, while the administrator-respondents got 3.59 verbally interpreted as Strongly Agree.

Table 3. *Respondents' Perceptions on the Leadership of Principals on Technology Integration as Regard Ability to Use Computers*

Ability to Use Computers	*Administrators*			*Teachers*		
	WM	*SD*	*VI*	*WM*	*SD*	*VI*
1. show expertise on the use of different applications in computers.	3.57	0.50	SA	3.54	0.50	SA
2. conduct supervising activities to teach teachers on the effective and efficient use of computers.	3.65	0.48	SA	3.46	0.51	SA
3. attend training programs/and seminar workshops to improve my ability to use computers.	3.76	0.43	SA	3.43	0.50	SA
4. attend training programs/and seminar workshops to improve my ability to use computers	3.47	0.50	SA	3.39	0.49	SA
5. act as resource speaker for the teachers to help them empower and capacitate themselves on the responsible use of computers among their learners.	3.48	0.50	SA	3.42	0.49	SA
Average Weighted Mean	3.59		SA	3.45		SA
Standard Deviation	0.48			0.50		

Note: 1.00 – 1.75 (SD); 1.76 – 2.50 (D); 2.51 – 3.25 (A); 3.26 – 4.00 (SA)

This elucidates that the two respondents share a parallel perception regarding the indicators under Ability to Use Computers. It also means that the principals are doing their part in helping the teachers improve their skills/abilities in using computers.

Innovativeness

Table 4. *Respondents' Perceptions on the Leadership of Principals on Technology Integration as Regard Innovativeness*

Technical Support	*Administrators*			*Teachers*		
	WM	*SD*	*VI*	*WM*	*SD*	*VI*
1. provide required facilities for innovative teachers to render success to the instructional process.	3.69	0.46	SA	3.32	0.47	SA
2. promote the spirit of friendly technological competitiveness among teachers in work.	3.68	0.47	SA	3.39	0.49	SA
3. accept/ consider new ideas presented by the teachers on technology innovations.	3.55	0.50	SA	3.41	0.49	SA
4. provide support to the innovative idea's makers.	3.54	0.50	SA	3.31	0.46	SA
5. draw future plans to encourage innovation among teachers.	3.51	0.50	SA	3.37	0.48	SA
Average Weighted Mean	3.59		SA	3.36		SA
Standard Deviation	0.49			0.48		

Note: 1.00 – 1.75 (SD); 1.76 – 2.50 (D); 2.51 – 3.25 (A); 3.26 – 4.00 (SA)

As presented in Table 4, the two groups of respondents obtained the average weighted mean of 3.59 and 3.36, respectively. Both the computed average weighted means were verbally interpreted as Strongly Agree.

This implies that the principals have showcased their high level of competence in being innovative. It further shows that two groups of respondents highly perceived the ability of the principals to show innovativeness, more so in guiding, encouraging, and facilitating the teachers to show their skills in technology innovations.

Technical Support

Table 5. *Respondents' Perceptions on the Leadership of Principals on Technology Integration as Regard Technical Support*

Technical Support	*Administrators*			*Teachers*		
	WM	*SD*	*VI*	*WM*	*SD*	*VI*
1. assist teachers in choosing appropriate technology designs for the learning tasks/ activities of the learners.	3.64	0.48	SA	3.76	0.43	SA
2. provide capability technology training program for the teachers to hone their skills on the use of technology.	3.67	0.47	SA	3.72	0.45	SA
3. encourage peer teaching mentoring/coaching on the use of technology.	3.76	0.43	SA	3.62	0.49	SA
4. find time assisting/ helping teachers who are willing to learn and equip themselves on using gadgets in teaching.	3.76	0.49	SA	3.74	0.44	SA
5. monitor and facilitate the use of technology by the teachers before, during, and after instructions.	3.59	0.50	SA	3.61	0.49	SA
Average Weighted Mean	3.68		SA	3.69		SA
Standard Deviation	0.47			0.44		

Note: 1.00 – 1.75 (SD); 1.76 – 2.50 (D); 2.51 – 3.25 (A); 3.26 – 4.00 (SA)

As shown in Table 5, the administrator-respondents got an average weighted mean of 3.68, while the teacher-respondents got 3.69, both of which were verbally interpreted as Strongly Agree. This elaborates that two groups of respondents extended the same perceptions as regards the set indicators under technical support. It also explains that the principals are doing their primary role in empowering and capacitating the teachers.

Frequency of Use

Table 6. *Respondents' Perceptions on the Leadership of Principals on Technology Integration as Regard Frequency of Use*

Frequency of Use	*Administrators*			*Teachers*		
	WM	*SD*	*VI*	*WM*	*SD*	*VI*
1. notice that teachers always use technology during class instructions/discussions.	3.61	0.49	SA	3.75	0.43	SA
2. understand that some teachers are still on the process of learning some important points on technology integration.	3.70	0.46	SA	3.77	0.42	SA
3. monitor the schedule of teachers in using ICT resources.	3.67	0.47	SA	3.67	0.47	SA
4. encourage teachers to use their free time/ancillary services to strengthen themselves on the use of technology.	3.64	0.48	SA	3.71	0.45	SA
5. encourage teachers to bring their pupils in the ICT to enhance their manipulative skills.	3.87	0.33	SA	3.68	0.47	SA
Average Weighted Mean	3.70		SA	3.72		SA
Standard Deviation	0.45			0.45		

Note: 1.00 – 1.75 (SD); 1.76 – 2.50 (D); 2.51 – 3.25 (A); 3.26 – 4.00 (SA)

As revealed in Table 6, the administrator-respondents got an average weighted mean of 3.70, while the teacher-respondents got 3.72, which were both verbally interpreted as Strongly Agree. This implies that the two groups of respondents have the same perceptions of the set indicators under the "Frequency of Use" variable. It also means that the principals are encouraging the teachers to utilize and integrate various technologies in the classroom setting effectively and frequently.

Teachers' Attitude

Table 7. *Respondents' Perceptions on the Leadership of Principals on Technology Integration as Regard Teachers' Attitude*

Teachers' Attitude	*Administrators*			*Teachers*		
	WM	*SD*	*VI*	*WM*	*SD*	*VI*
1. recognize that teachers become resourceful in providing technology tools for themselves and for the learners.	3.73	0.44	SA	3.36	0.48	SA
2. see that the teachers play an effective role in implementing technology academic plan.	3.59	0.49	SA	3.36	0.48	SA
3. recognize that teachers show willingness to learn technology use effectively and efficiently.	3.47	0.50	SA	3.37	0.48	SA
4. acknowledge the teachers' interest/aim is to hone their skills through attending various workshops on technology integration.	3.4	0.49	SA	3.40	0.46	SA
5. see that teachers are willing to be guided on the development of learning sheets/activities through the use of technology.	3.55	0.50	SA	3.41	0.49	SA
Average Weighted Mean	3.55		SA	3.38		SA
Standard Deviation	0.48			0.48		

Note: 1.00 – 1.75 (SD); 1.76 – 2.50 (D); 2.51 – 3.25 (A); 3.26 – 4.00 (SA)

As shown in Table 7, the teacher-respondents obtained an average weighted mean of 3.38, while the administrator-respondents obtained 3.55, both of which were verbally interpreted as Strongly Agree. This elaborates that two groups of respondents have shown a similar view on the leadership of principals, specifically on teachers' attitudes. It further elucidates that the principals have shown a strong sense of responsibility in improving/ strengthening the teachers' attitudes considering the set indicators and other aspects.

Teachers' Performance

Table 8. *Respondents' Perceptions on the Leadership of Principals on Technology Integration as Regard Effect to Teachers' Performance*

Effect to Teachers' Performance	*Administrators*			*Teachers*		
	WM	*SD*	*VI*	*WM*	*SD*	*VI*
1. see the improvement of teachers' ability in manipulating computers.	3.50	0.50	SA	3.43	0.50	SA
2. see the development of teacher-made presentations in terms of making slide decks/ power point presentations.	3.61	0.49	SA	3.45	0.50	SA
3. acknowledge the creative designs and worksheets developed by the teachers.	3.56	0.50	SA	3.44	0.46	SA
4. recognize the progress of the teaching styles of the teachers with the use of computers.	3.38	0.49	SA	3.31	0.49	SA
5. recognize the performance improvement of teachers in their day-to-day teaching through the effective and efficient technology interactions.	3.44	0.50	SA	3.41	0.50	SA
Average Weighted Mean	3.50		SA	3.41		SA
Standard Deviation	0.50			0.49		

Note: 1.00 – 1.75 (SD); 1.76 – 2.50 (D); 2.51 – 3.25 (A); 3.26 – 4.00 (SA)

As revealed in Table 8, the two groups of respondents obtained the average weighted mean of 3.50 and 3.41, respectively. Both the computed average weighted means were verbally interpreted as Strongly Agree.

This explains that the principals have responsibly managed the teachers' use of the different technology tools. It also opens the idea that both groups of respondents have seen a good effect and improvement in teachers' performance integrating the use of the different technology tools in teaching.

Summary

Table 9. *Summary of Respondents' Perceptions on the Leadership of Principals on Technology Integration*

		Administrators		*Teachers*	
		AWM	*VI*	*AWM*	*VI*
a.	Technological Competence	3.52	SA	3.33	SA
b.	Technology Knowledge	3.72	SA	3.73	SA
c.	Ability to Use Computers	3.59	SA	3.45	SA
d.	Innovativeness	3.59	SA	3.36	SA
e.	Technical Support	3.64	SA	3.69	SA
f.	Frequency of Use	3.70	SA	3.72	SA
g.	Teachers' Attitude	3.55	SA	3.36	SA
h.	Effect to Teachers' Performance	3.50	SA	3.41	SA
	Grand Weighted Mean	3.60	SA	3.51	SA

As presented in Table 9, the administrator-respondents obtained a grand weighted mean of 3.60, while the teacher-respondents obtained 3.51, both of which were verbally interpreted as Strongly Agree.

This generally means that the principals' leadership on the technology integration has been perceived similarly by the two groups of respondents. It also implies that the principals have responsibly equipped themselves so that they can help their teachers effectively utilize the different technology tools and platforms.

Significant Difference

Leadership of Principals on Technology Integration and Technological Competence

It can be gleaned from Table 10, that in terms of technological competence, the computed t value of 4.902 is higher than the computed critical t value of 2.78. At 0.05 significance level, the statistical decision is to reject the null hypothesis. This also indicates that there is a significant difference in the perceptions of the two groups of respondents.

Table 10. *Test of Significant Difference in the Perceptions of the Two Groups of Respondents on the Leadership of Principals on Technology Integration as to Technological Competence*

Respondents	*Mean*	*Standard Deviation*	*Computed t Value*	*Critical t Value 0.05 α*	*Decision*	*Interpretation*
School Administrators	3.52	0.49	4.902	2.78	Reject Ho	Significant
Teachers	3.33	0.46				

Note: Computed t value > Critical t value (Reject Ho) Computed t value < Critical t value (Retain Ho)

This means that the principals are already knowledgeable about the use or integration of different technology tools, applications, and platforms, but there is still a need to increase or strengthen their abilities to improve their technological learning as well as their technological competence.

Leadership of Principals on Technology Integration and Technology Knowledge

Table 11. *Test of Significant Difference in the Perceptions of the Two Groups of Respondents on the Leadership of Principals on Technology Integration as to Technology Knowledge*

Respondents	*Mean*	*Standard Deviation*	*Computed t Value*	*Critical t Value 0.05 α*	*Decision*	*Interpretation*
School Administrators	3.72	0.45	-0.469	2.78	Retain Ho	Not Significant
Teachers	3.33	0.44				

Note: Computed t value > Critical t value (Reject Ho) Computed t value < Critical t value (Retain Ho)

As displayed in Table 11, in terms of Technology Knowledge, the computed t value of -0.469 is less than the computed critical value of 2.78.

At 0.05 level of significance , the statistical decision is to retain the null hypothesis. This means that there is no significant difference between the perception of the two groups of respondents.

Hence, it shows that the principals' knowledge in terms of technology is being shared to the teachers to help them strengthen their manipulative skills on the integration of the different technology tools, applications, and platforms.

Leaderships of Principlas on Technology Integration and Ability to Use Computers

Table 12. *Test of Significant Difference in the Perceptions of the Two Groups of Respondents on the Leadership of Principals on Technology Integration as to Ability to Use Computers*

Respondents	*Mean*	*Standard Deviation*	*Computed t Value*	*Critical t Value 0.05 α*	*Decision*	*Interpretation*
School Administrators	3.59	0.48	2.505	2.78	Fail to	Not Significant
Teachers	3.45	0.50			Reject Ho	

Note: Computed t value > Critical t value (Reject Ho) Computed t value < Critical t value (Retain Ho)

As displayed in table 12, in terms of Ability to use computers, the computed t-value of 2.505 is less than the computed critical t value of 2.78. At 0.05 level of significance, the statistical decision is failed to reject the null hypothesis. This also indicates that there is no significant difference between the perceptions of the two groups of respondents.

This implies that the ability of the principals to use computers have been perceived highly by the respondents. It also explains that the principals' leadership in terms of the mentioned aspects is highly recognized by the respondents.

Leardership of Principals on Technology Integration and Innovativeness

Table 13. *Test of Significant Difference in the Perceptions of the Two Groups of Respondents on the Leadership of Principals on Technology Integration as to Innovativeness*

Respondents	*Mean*	*Standard Deviation*	*Computed t Value*	*Critical t Value 0.05 α*	*Decision*	*Interpretation*
School Administrators	3.59	0.488	5.277	2.78	Reject Ho	Significant
Teachers	3.36	0.476				

Note: Computed t value > Critical t value (Reject Ho) Computed t value < Critical t value (Retain Ho)

It could be gleaned in Table 13, in terms of innovativeness, the computed t value of 5.277 is higher than the computed critical t value of 2.78 with 0.05 level of significance, this led to the statistical decision of rejecting the null hypothesis. This also indicates that there is a significant difference between the perceptions of the two groups of respondents.

This implies that the principals have to continue strengthening their innovative skills in order that the teachers' perceptions as regards their innovativeness would also be improved. It is also proper that the principals empower and encourage more their teachers to also strengthen their innovative skills.

Leadership of Principals on Technology Integration and Technical Support

Table 14. *Test of Significant Difference in the Perceptions of the Two Groups of Respondents on the Leadership of Principals on Technology Integration as to Technical Support*

Respondents	*Mean*	*Standard Deviation*	*Computed t Value*	*Critical t Value 0.05 α*	*Decision*	*Interpretation*
School Administrators	3.68	0.47	-0.139	2.78	Retain Ho	Not Significant
Teachers	3.69	0.46				

Note: Computed t value > Critical t value (Reject Ho) Computed t value < Critical t value (Retain Ho)

It can be seen in Table 14, in terms of technical support, the two groups of respondents got the means of 3.68 and 3.69 respectively. As a result, the computed t value of 2.78. At 0.05 level of significance, the statistical decision is to retain the null hypothesis. This indicates that there is no significant difference between the perceptions of the two groups of respondents.

This means that the principals are responsible enough in providing technical support to their teachers.

Leadership of Principals on Technology Integration and Frequency of Use

Table 15. *Test of Significant Difference in the Perceptions of the Two Groups of Respondents on the Leadership of Principals on Technology Integration as to Frequency of Use*

Respondents	*Mean*	*Standard Deviation*	*Computed t Value*	*Critical t Value 0.05 α*	*Decision*	*Interpretation*
School Administrators	3.70	0.45	-0.319	2.78	Retain Ho	Not Significant
Teachers	3.72	0.45				

Note: Computed t value > Critical t value (Reject Ho) Computed t value < Critical t value (Retain Ho)

It can be gleaned in Table 15, in terms of Frequency of Use , the computed t value of -0.319 is less than the computed critical value of 2.78. At 0.05 level of significance, the statistical decision to retain the null hypothesis. This also explains that there is no significant difference between the perceptions of the two groups of respondents.

Thus, this means that the principals are doing much encouragement to the teachers to always consider the integration or the use of the different technology tools / platforms to communicate instructions and other important matters.

Leadership of Principals on Technology Integration and Teachers' Attitude

It can be observed in Table 16, in terms of teachers' attitude, the computed t value is less than the computed critical t value of 2.78. At 0.05 level of significance, the statistical decision is failed to reject the null hypothesis. This also elaborates that there is no significant difference between the perceptions of the two groups of respondents.

Table 16. *Test of Significant Difference in the Perceptions of the Two Groups of Respondents on the Leadership of Principals on Technology Integration as to Teachers' Attitude*

Respondents	*Mean*	*Standard Deviation*	*Computed t Value*	*Critical t Value 0.05 α*	*Decision*	*Interpretation*
School Administrators	3.55	0.48	2.685	2.78	Fail to Reject Ho	Not Significant
Teachers	3.38	0.48				

Note: Computed t value > Critical t value (Reject Ho) Computed t value < Critical t value (Retain Ho)

This elucidates that the leadership of the principals in managing and improving the teachers' attitude on the integration of the different technology tools/platforms are properly monitored and given importance.

Leadership of Principals on Technology Integration and Effect to Teachers' Performance

Table 17. *Test of Significant Difference in the Perceptions of the Two Groups of Respondents on the Leadership of Principals on Technology Integration as to Effect to Teachers' Performance*

Respondents	*Mean*	*Standard Deviation*	*Computed t Value*	*Critical t Value 0.05 α*	*Decision*	*Interpretation*
School Administrators	3.50	0.50	3.985	2.78	Reject Ho	Significant
Teachers	3.41	0.49				

Note: Computed t value > Critical t value (Reject Ho) Computed t value < Critical t value (Retain Ho)

As shown in Table 17, in terms of effect to teachers' performance, the computed t value of 3.985 is higher than the computed critical t value of 2.78. At 0.05 level of significance, the statistical decision is to reject the null hypothesis. This indicates that there is a significant difference between the perceptions of the two groups of respondents.

This means that there is still a need for the principals to gradually improve their leadership skills such that they would be able to help the teachers realize the significant benefits of using the different technology tools/platforms which would result to an improved teachers' performance.

Summary of Test of Significant Difference

Table 18. *Summary of Test of Significant Difference in the Perceptions of the Two Groups of Respondents on the Leadership of Principals on Technology Integration*

Variables	*Respondents*	*Computed t Value*	*Critical t Value 0.05 α*	*Decision*	*Interpretation*
Technological Competence	Administrators Teachers	4.902	2.78	Reject Ho	Significant
Technology Knowledge	Administrators Teachers	-0.469	2.78	Retain Ho	Not Significant
Ability to Use Computers	Administrators Teachers	2.505	2.78	Fail to Reject Ho	Not Significant
Innovativeness	Administrators Teachers	5.277	2.78	Reject Ho	Significant
Technical Support	Administrators Teachers	-0.139	2.78	Retain Ho	Not Significant
Frequency of Use	Administrators Teachers	-0.319	2.78	RetainHo	Not Significant
Teachers' Attitude	Administrators Teachers	2.685	2.78	Fail to Reject Ho	Not Significant
Effect to Teachers' Performance	Administrators Teachers	3.985	2.78	Reject Ho	Significant

It could be gleaned in Table 18, in terms of technology knowledge, ability to use computers, technical support, frequency of use, and teachers' attitude, the computed t values of -0.469,2.505,-0.139-0.319 and 2.685 are less than the computed t value of 2.78. At 0.05 level of significance, this led to the statistical decision of retaining the null hypothesis. This also indicates that there is no significant difference between the perceptions of the two groups of respondents with respect to the aforementioned aspects.

However, in terms of innovativeness, effect to teachers' performance, and technological competence, the computed t values of 5.277, 3.985, and 4.902 are higher than the computed critical t value of 2.78. At 0.05 level of significance, this led to the statistical decision

of rejecting the null hypothesis. This also explains that there is a significant difference between the perceptions of the two groups of respondents.

This generally means that there is a need for the principals to improve their leadership on the three mentioned aspects to update themselves with current technology information that are very vital to share with the teachers.

Table 19. *School Performance Rating School Year 2022-2023*

Libmanan South District, Division of Camarines Sur		
School	*Performance Rating*	*Adjectival Rating*
School 1	4.36	Very Satisfactory
School 2	4.48	Very Satisfactory
School 3	4.39	Very Satisfactory
School 4	4.42	Very Satisfactory
School 5	4.39	Very Satisfactory

As presented on Table 19, the school performance ratings of the 5 school respondents were 4.36, 4.48, 4.39, 4.42, and 4.39 respectively. All the computed school performance ratings during the school year 2022-2023 were given an adjectival rating of Very Satisfactory.

Table 20. *Test of Significant Correlation Between the Leadership of Principals on Technology Integration and School Performance*

Sources	*Significant Correlation Between the Leadership of Principals on Technology Integration and School Performance*				
	r - value	*r2*	*Strength of Correlation*	*Decision*	*VI*
Technological Competence versus School Performance	-0.065	0.004	Very Low Correlation	Retain Ho	Not Significant
Technology Knowledge versus School Performance	0.007	0.000	Very Low Correlation	Retain Ho	Not Significant
Ability to Use Computers versus School Performance	-0.077	0.006	Very Low Correlation	Retain Ho	Not Significant
Innovativeness versus School Performance	-0.065	0.004	Very Low Correlation	Retain Ho	Not Significant
Technical Support versus School Performance	-0.071	0.005	Very Low Correlation	Retain Ho	Not Significant
Frequency of Use Performance versus School Performance	0.053	0.003	Very Low Correlation	Retain Ho	Not Significant
Teachers' Attitude versus School Performance	-0.087	0.008	Very Low Correlation	Retain Ho	Not Significant
Effect to Teachers' Performance versus School Performance	-0.043	0.002	Very Low Correlation	Retain Ho	Not Significant

Critical value of r: 0.05

As presented on Table 20, in terms of technological competence, technology knowledge, ability to use computers, innovativeness, technical support, frequency of use, teachers' attitude, and effect to teachers' performance, the computed t values r - values of -0.065, 0.007, -0.077,-0.065, -0.71, 0.053, -0.087, and -0.043, while the computed critical r2 values are 0.004, 0.000, 0.006, 0.004, 0.005, 0.003, 0.008 and 0.002 indicate that the strength of correlation in terms of school performances are very low. This led to the statistical decision of retaining the null hypothesis. This also indicates that there is no significant correlation in each of the aforementioned variables and the school performance.

This generally means that principals' leadership on the integration of technology with respect to the variables used do not significantly affect the school performance and vice-versa.

Conclusions

Based on the results of the study, the following conclusions were drawn:

The school administrator and teacher-respondents highly perceived the principals' leadership on technology integration, specifically in terms of technology knowledge, ability to use computers, technical support, frequency of use, and teachers' attitudes.

The principals need to strengthen their skills in technological competence, innovativeness, and effect on teachers' performance.

The principals' leadership on technology integration does not affect the school's performance.

The following recommendations are hereby given:

The principals may help their teachers increase their level of competence in the effective integration of the different technology tools, applications, and platforms in the classroom setting.

The principals may institutionalize training on the utilization of various technology tools for the teachers to be empowered, capacitated, and trained properly.

Future researchers may conduct a similar study regarding principals' leadership on technology integration using other variables.

References

Bauer, J. & Kenton, J. (2019). Toward technology integration in the schools: Why it isn't happening. Journal of Technology and Teacher Education, 13(4).

Brockmeier, L., Sermon, J., & Hope, W. (2020). Principals' relationship with computer technology. NASSP Bulletin, 89(643), 45-63.

Cery, K. (2020). Principal leadership for technology integration: A study of principal technology leadership. Unpublished doctoral dissertation. Drexel University, the United States. Retrieved June 6, from http://www.iste.org/Content/NavigationMenu/Research/NECC_Research_ Paper_ Archives/NE CC_ /Kozlowski_ Kristen_ N07.

Daniel, P. T. K., & Nance, J. P. (2020). The role of the administrator in instructional technology policy. B.Y.U. Education and Law Journal, 211- 231.

Dawson, C., & Rakes, G. (2019). The influence of principals' technology training on the integration of technology into schools. Journal of Research on Technology in Education, 36(1), 29-49

Ertmer, P., & Bai, H. (2019). Technology leadership: Shaping administrators' knowledge and skills through an online professional development course. In D. Willis et al. (Eds.), Proceedings of Society for information Technology & Teacher Education international Conference (pp. 482-486). Chesapeake, VA: AACE.

Fadel, C., & Lemke, C. (2019). Technology in schools: What the research says. Retrieved from http://www.cisco.com/web/strategy/docs/education/ Technology in Schools Report pdf.

Finn, R. W. (2020). An investigation of the needs of school principals for successful integration of technology in high schools (Unpublished dissertation). Dowling College: New York.

Fullan, M. (2019). The New Meaning of Educational Change, New York: Teacher's College Press.

Gahala, J. (2021). Critical issues: Promoting technology use in schools. Naperville, ILL: North Central Regional Educational Laboratory.

Gusby, T. (2020). Closing achievement gaps: Revisiting Benjamin S. Bloom's "Learning for Mastery." Education Week, 2(35), 14-27.

Jonah, G. (2019). Instructional technology leadership ability of the school principal and effective use of technology in the classroom. Doctoral dissertation, Argosy University, Nashville, TN.

Keithwood, K., Louis, K., Anderson, S., & Wahlstrom, K. (2019). Learningfrom leadership: A review of the literature. Minneapolis: University of Minnesota, Center for Applied Research and Educational Improvement

Leonard, L., & Leonard, P. (2019). Leadership for technology integration: Computing the reality. The Alberta Journal of Educational Research, 52(4), 212-224.

Mishra, P. & Koehler, M.J. (2019). Technological Pedagogical Content Knowledge: A Framework for Teacher Knowledge. Teachers College Record, 108(6), p. 1017-1020.

Nolen, A. J. (2021). The content of educational psychology: An analysis of top-ranked journals from 2003-2007. Educational Psychology Review, 21, 279-289.

Northhouse, P.G. (2020). Leadership: Theory and Practice. SAGE Publications: Thousand Oaks, CA.

Penuel, W. (2019). Implementation and effects of one-to-one computing initiatives: A research synthesis. Journal of Research on Technology in Education, 3(2), 5-25.

Sivin-Kachala, J., & Bialo, E. R. (2020). Using information and communication technology. International Journal of Education and Development, 7(1), 68-85.

Warschauer, M. (2019). New reports on technology in U.S. schools: The changing divide. Papyrus News: On Digital Learning and Literacy. Retrieved from http://papyrusnews.com/about-papyrus/.

Wilmore, D., & Betz, M. (2018). Information technology and the schools: The principal's role. Educational Technology & Society, 3(4), 12-19.

Affiliations and Corresponding Information

Princess B. Pacon
Lipa City Colleges – Philippines

Dr. Melchor Espiritu
Lipa City Colleges – Philippines