

SCHOOL LEADER’S DIGITAL LEADERSHIP AND TEACHER’S DIGITAL COMPETENCE BASIS FOR A DIGITAL LEADERSHIP SKILL PROGRAM

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Abstract

This study examines the digital leadership of school leaders and the digital competence of teachers, focusing on their transformative skills. The demographic profiles of both school leaders and teachers reveal a well-qualified and experienced cohort, with a strong emphasis on professional development. The findings indicate that both groups are highly competent in several key areas, such as enhancing instructional strategies and fostering a culture of innovation. However, there are areas for improvement, particularly in creating a sustainable digital culture and fostering collaboration. The study also explores the significant relationships between demographic factors and digital competence. For school leaders, practical experience and professional development are critical factors, while for teachers, a comprehensive approach to professional development is

necessary. The factors affecting digital competence include clear policies, visionary leadership, and access to resources, emphasizing the need for a holistic approach to developing digital skills. The study highlights the importance of tailored training programs, ongoing professional development, and a supportive school culture in enhancing digital leadership and competence. In addressing the identified factors and providing targeted support, schools can effectively integrate digital tools into their practices, ultimately improving the overall quality of education in the digital age.

Keywords: Digital Leadership, Digital Competence, Professional Development

Introduction

Digital leadership in schools has become increasingly vital in an era dominated by technological advancements. As educational institutions navigate the digital age, the importance of integrating technology in teaching and leadership becomes undeniable. In particular, the role of school leaders and teachers in adopting and promoting digital competence is crucial in ensuring effective learning environments. The digital divide, however, remains a significant challenge, with varying levels of digital

skills among teachers and school administrators. Mabalacat City, for instance, aimed to improve its educational delivery by equipping its school leaders and teachers with the necessary skills to lead and teach effectively in a digitally integrated environment. This rationale discussed the need to digital leadership skill programs for school leaders and enhance teachers' digital competence at Mabalacat City District.

Several studies highlight the importance of digital leadership in fostering an environment conducive to effective teaching and learning. A study by Fullan (2016) emphasized that digital leadership is not just about using technology but is about leading the transformation of educational practices to integrate digital tools meaningfully. Similarly, the work of Leithwood et al. (2019) suggests that effective school leadership should prioritize technological integration to support learning outcomes. Moreover, a report by the Organisation for Economic Co-operation and Development (OECD, 2020) argues that school leaders play a crucial role in fostering a culture of digital competence through professional development programs for teachers. These findings underscore the need for targeted leadership training that includes digital skills development for both school leaders and teachers.

Globally, there has been a surge in initiatives aimed at enhancing the digital skills of school leaders and teachers. For example, in 2021, the European Commission launched a Digital Education Action Plan aimed at

improving the digital skills of teachers across Europe. This plan encourages school leaders to implement policies that support digital learning and ensure that both teachers and learners have the necessary skills to thrive in a digital world. Similarly, in the United States, the National Educational Technology Standards (NETS) for administrators have been revised to include a strong focus on digital leadership, underscoring the increasing recognition of the need for school leaders to be digitally competent.

In terms of practical applications, several studies have demonstrated the importance of digital leadership in enhancing educational outcomes. For instance, a study by Angeli and Valanides (2016) found that school leaders who are digitally competent are better able to integrate technology into their schools and lead teacher professional development in digital tools. Another study by Zhang et al. (2018) revealed that teachers' digital competence significantly influences their ability to adopt innovative teaching practices, which are essential for creating an engaging and effective digital learning environment. These findings stress the importance of digital leadership in empowering teachers to integrate technology into their teaching effectively.

In the Philippine context, various studies highlight the increasing need for digital competence among teachers and school leaders. A report by the Department of Education (DepEd, 2021) outlined the importance of training school leaders and teachers in digital literacy, especially in the wake of the COVID-19 pandemic, which pushed the education sector to adapt to remote

learning. According to a study by Salazar (2019), school leaders in the Philippines face significant challenges in adopting digital tools due to inadequate training and infrastructure. This study emphasizes the need for professional development programs for school leaders to enhance their digital leadership skills.

In recent years, news outlets have reported on the Philippines' push to improve the digital competence of its educational workforce. For instance, in 2020, the Philippine Star reported that the DepEd had partnered with various tech companies to provide digital tools and resources to teachers nationwide. This initiative aimed to bridge the gap in digital literacy and ensure that teachers are equipped to handle online classes. Additionally, the Manila Bulletin (2023) discussed how the digital divide remains a challenge in rural areas of the Philippines, making the need for digital leadership training even more urgent.

Local studies also emphasize the need for enhanced digital skills in schools. A study by Reyes et al. (2020) on the integration of ICT in Philippine schools found that many teachers lacked the necessary digital competencies to effectively use technology in their classrooms. In another study by Cruz (2021), it was highlighted that school leaders' digital competencies directly impact teachers' confidence in using technology, which, in turn, influences learners' learning outcomes. These studies show that there is a critical need for targeted programs to develop digital

leadership and improve the digital competence of teachers in the Philippines.

The need to conduct a study on the development of digital leadership skills for school leaders and digital competence for teachers at Mabalacat City District stemmed from the rapid growth of technology and the challenges it brings to educational settings. As it enters the 2024-2025 school year, the demand for effective integration of digital tools in teaching and learning is undeniable. School leaders must be equipped to guide their schools through this transformation, while teachers need to feel confident and competent in using technology to enhance learning. Mabalacat City District, like many schools in the Philippines, faces the challenge of bridging the digital divide among its teachers. In developing digital leadership skills among school leaders and improving teachers' digital competence, the school can create a more effective, engaging, and inclusive learning environment that is aligned with global educational trends. Given the findings from both local and international literature and studies, there is a clear need to focus on professional development initiatives to foster a digitally proficient educational community.

Research Objectives

This study described the school leader's digital leadership and teacher's digital competence basis for a digital leadership skill program in Mabalacat City District school year 2024-2025.

Specifically, it sought to answer the following questions:

What is the demographic profile of the school leaders and teachers?

How school leader's digital leadership and teacher's digital competence in their own transformative skills?

Is there a significant relationship between the demographic profile of the school leaders and teachers and school leader's digital leadership and teacher's digital competence in their own transformative skills?

What are the factors affecting school leader's digital leadership and teacher's digital competence

What intervention can be provided among leaders and teachers digital leadership skill program?

Methods

This section presents the research design, the sources of data, the instrumentation and data collection, and the tools for data analysis.

Research Design

This study employed a descriptive-correlational research design to assess the digital leadership skills of school leaders and the digital competence of teachers at Mabalacat City District for the school year 2024–2025. The descriptive aspect of the study aimed to provide a detailed profile of the current levels of digital leadership among school leaders and the digital competence of teachers. It identified gaps, challenges, and strengths in these areas with surveys, structured interviews, and observations. This design was appropriate as it allowed for a comprehensive understanding of the phenomena under study while capturing the experiences and perceptions of the participants.

The correlational aspect of the study explored the relationship between the digital leadership of school leaders and the digital competence of teachers. In analyzing these relationships, the study sought to determine whether and how school leaders' digital leadership influenced teachers' ability to integrate digital tools into their instructional practices. This design was suitable for identifying patterns and connections without manipulating variables, making it ideal for exploring naturally occurring interactions within the school environment. The findings served as a basis for developing targeted programs to enhance digital leadership skills and teacher competence at Mabalacat City District.

Sources of Data

The primary sources of data for this study were the school leaders and teachers at Mabalacat City District. School leaders, including the principal and department heads, provided data on their digital leadership skills, practices, and perceptions regarding the integration of technology in school management and instructional processes. Teachers contributed data on their digital competence, focusing on their ability to use digital tools in teaching, the challenges they encountered, and their participation in professional development programs related to technology.

Secondary sources of data included relevant institutional documents such as school reports, ICT integration plans, and records of professional development activities related to digital leadership and competence. Additionally, existing policies from the Department of Education (DepEd), such as the Philippine ICT Roadmap and National Framework for Teacher Professional Development, were reviewed to contextualize the study and align its recommendations with national educational goals. These secondary sources supplemented the primary data, ensuring a comprehensive analysis of the digital competencies and leadership skills within the school.

Locale of the Study

The study was conducted at Mabalacat City District, Pampanga, Philippines. It is part of the Department of Education's (DepEd) initiative to improve the quality of education through the integration of information

and communication technology (ICT). The school had implemented various programs aimed at enhancing teaching and learning, making it an ideal setting to explore the digital leadership skills of its school leaders and the digital competence of its teachers.

Mabalacat City District was equipped with basic technological infrastructure such as computer laboratories, internet connectivity, and access to digital tools for teaching and administrative tasks. These resources provided a foundation for integrating digital technology into educational practices. However, like many public schools, it faced challenges in fully maximizing these resources due to varying levels of digital competence among teachers and school leaders. This study focused on this specific locale to identify strengths and gaps in digital leadership and competence, providing insights that could contribute to the school's overall technological advancement and alignment with DepEd's ICT-related policies.

Population Sampling

The study focused on the population of school leaders and teachers at Mabalacat City District for the school year 2024–2025. There are 30 school leaders, including the principal and department heads, and approximately 60 teachers from various academic and technical departments. This group was appropriate for assessing digital leadership skills and teacher digital competence, as they were directly involved in the management and instructional practices within the school.

Top of Form

Bottom of Form

Instrumentation and Data Collection

This study utilized a combination of survey questionnaires and structured interviews as the primary instruments for data collection. The survey questionnaires were designed to gather quantitative data on the digital leadership skills of school leaders and the digital competence of teachers. Separate but complementary questionnaires were developed for school leaders and teachers. The questionnaire for school leaders focused on assessing their digital leadership practices, including their ability to implement technology in management, foster a digital culture, and support teachers' use of digital tools. Meanwhile, the teacher questionnaire evaluated their proficiency in integrating digital tools into instruction, their confidence in using technology, and the challenges they encountered. The questionnaires used a 5-point Likert scale to measure responses, ranging from "strongly disagree" to "strongly agree."

Structured interviews were conducted with selected school leaders and teachers to gather qualitative data and provide deeper insights into their experiences and perceptions. These interviews focused on exploring the context, challenges, and strategies related to digital leadership and competence within the school. Secondary data, such as records of professional development programs, ICT infrastructure reports, and

relevant DepEd policies, were also reviewed to complement the primary data. The data collection process was conducted over a one-month period, ensuring sufficient time for administering surveys, conducting interviews, and validating the responses. Data were carefully recorded and anonymized to maintain confidentiality and ethical standards.

Tools for Data Analysis

The following tools were utilized to treat the data statistically:

Frequency and Percentage

In describing the demographic profile of the school leaders and teachers, frequency, and percentage were used. Frequency pertains to the number of times a case is observed. Percentage pertains to a portion of a part compared to the whole. It is computed with the formula,

where

Percentage

Frequency

Total Number of Cases

Average Weighted Mean.

This was used to answer problem number 2 and 4.

The formula is:

Σfx

$$AWM = \frac{\sum fx}{N}$$

N

Where:

AWM = average weighted mean

f = frequency

$\sum fx$ = the sum of the weighted frequency

N = total number of respondents

4.50-5.00	Very Competent	Much Affecting
3.50-4.49	Much Competent	Much Affecting
2.50-3.49	Moderately Competent	Moderately Affecting
1.50-2.49	Slightly Competent	Slightly Affecting
1.00-1.49	Not Competent	Not Affecting

In testing the significant relationship between the demographic profile of the school leaders and teachers and school leader's digital leadership and teacher's digital competence in their own transformative skills, the Chi-Square of Independence Test was utilized. Categorical classifications were done in the continuous data.

Ethical Considerations

This study adhered to strict ethical guidelines to ensure the rights and welfare of all participants were respected throughout the research process. Participation in the study was entirely voluntary, and all respondents were provided with informed consent forms, which clearly outlined the purpose of the study, the nature of their involvement, and their right to withdraw at any time without penalty. The confidentiality of the respondents was maintained by anonymizing all survey and interview data, ensuring that individual responses could not be traced back to specific participants. Personal identifiers were excluded from the collected data, and all data were stored securely, accessible only to the researcher for analysis.

Additionally, the study prioritized transparency and fairness in reporting results. The findings were presented objectively, with all data analyzed without bias. The researcher avoided any conflicts of interest and ensured that the study's conclusions were based solely on the data collected. Ethical approval was sought from the appropriate institutional review board or ethics committee to ensure compliance with research ethics standards. These considerations helped safeguard participants' rights, upheld the integrity of the research process, and maintained trust within the school community.

Results And Discussion

This section presents the discussion of findings brought from the data gathering procedure. The data gathering procedures were based on the questions posited in the beginning of this study.

1. Demographic Profile of the School Leaders and Teachers

Table 1.1

Demographic Profile of the School Leaders

N = 30

Demographics	f	%	Std. Dev.	Skewness	Kurtosis
Age	f	%	Std. Dev.	Skewness	Kurtosis
61-64 years old	1	4	2.752	0.189	-1.945
56-60 years	2	5			
51-55 years	2	7			
46-50 years	4	13			
41-45 years	6	20			
36-40 years	8	27			
35 years or younger	7	24			
Total	30	100			

Demographics	f	%	Std. Dev.	Skewness	Kurtosis
Gender	f	%	Std. Dev.	Skewness	Kurtosis
Male	13	43	2.828	-	-
Female	17	57			
Total	30	100			
No. of Years as School Head	f	%	Std. Dev.	Skewness	Kurtosis
20 years and over	3	10	3.937	0.860	0.502
15-19 years	6	21			
10-14 years	12	40			
5-9 years	7	24			
less than 5 years	2	5			
Total	30	100			
Highest Educational Attainment	f	%	Std. Dev.	Skewness	Kurtosis
Doctoral degree	1	4	5.377	0.265	0.869

Demographics	f	%	Std. Dev.	Skewness	Kurtosis
Earned doctoral units	6	20			
Master's degree	14	48			
Earned masteral units	9	28			
Total	30	100			
Trainings Attended	f	%	Std. Dev.	Skewness	Kurtosis
International	2	7	4.203	-0.646	0.707
National	9	29			
Regional	12	40			
Division	7	24			
Total	30	100			

The demographic profile of the school leaders in this study provides a comprehensive overview of their backgrounds, which is crucial for understanding their digital leadership capabilities and the potential impact on teachers' digital competence. The age distribution of the school leaders shows a diverse range, with the majority falling between 36 to 40 years old

(27%) and 35 years or younger (24%). This indicates a relatively young leadership cohort, which could be advantageous for digital leadership as younger leaders might be more adaptable and open to integrating new technologies. However, the presence of leaders in the older age brackets, such as those aged 61-64 years (4%) and 56-60 years (5%), suggests a blend of experience and potentially more traditional approaches to leadership. The standard deviation of 2.752 and skewness of 0.189 indicate a slight positive skew, meaning there are more younger leaders than older ones, while the kurtosis of -1.945 suggests a relatively flat distribution with fewer extreme values.

Gender distribution among the school leaders shows a higher percentage of females (57%) compared to males (43%). This gender balance could influence the leadership styles and approaches to digital integration, as research often suggests that female leaders may adopt more collaborative and inclusive leadership styles. The standard deviation of 2.828 indicates some variability in the gender distribution, but without skewness and kurtosis values, it's challenging to determine the exact nature of this variability. Nonetheless, the presence of both genders in leadership positions is essential for a balanced perspective on digital leadership.

The number of years the school leaders have served as heads varies significantly, with the majority having 10-14 years of experience (40%) and 5-9 years (24%). This indicates a substantial level of experience among the

leaders, which could positively impact their ability to lead digital initiatives effectively. Leaders with over 20 years of experience (10%) and those with less than 5 years (5%) represent the extremes, suggesting a mix of seasoned and relatively new leaders. The standard deviation of 3.937, skewness of 0.860, and kurtosis of 0.502 indicate a positively skewed distribution with a moderate peak, suggesting that most leaders have moderate to high levels of experience, with fewer at the extremes.

Regarding educational attainment, the majority of school leaders hold a master's degree (48%), followed by those with earned masteral units (28%) and earned doctoral units (20%). Only a small percentage have a doctoral degree (4%). This high level of educational attainment suggests that the leaders are well-qualified and likely to value continuous professional development, which is crucial for effective digital leadership. The standard deviation of 5.377, skewness of 0.265, and kurtosis of 0.869 indicate a relatively normal distribution with a slight positive skew, suggesting that most leaders have advanced degrees, with fewer at the lower and higher ends of the educational spectrum.

The training attended by the school leaders varies, with the majority having attended regional (40%) and national (29%) training sessions. This indicates a strong emphasis on professional development at broader levels, which is essential for staying updated with the latest digital trends and practices. A smaller percentage have attended division-level (24%) and

international (7%) training, suggesting that while there is some exposure to global best practices, most training is focused on national and regional contexts. The standard deviation of 4.203, skewness of -0.646, and kurtosis of 0.707 indicate a negatively skewed distribution with a moderate peak, suggesting that most leaders have attended regional and national training, with fewer attending division and international training.

The implications of these findings are significant for the development of a digital leadership skill program. The relatively young age of the leaders suggests a potential for greater adaptability and openness to digital innovation. However, the presence of older leaders indicates a need for tailored training that addresses the varying levels of digital proficiency and comfort with technology. The gender distribution highlights the importance of inclusive leadership approaches that leverage the strengths of both male and female leaders.

The varying levels of experience among the leaders suggest that the digital leadership program should cater to both seasoned and new leaders, providing advanced training for experienced leaders and foundational training for those with less experience. The high level of educational attainment indicates that the leaders are likely to value and engage in professional development, making them receptive to a well-designed digital leadership program.

The emphasis on regional and national training suggests that the digital leadership program should incorporate best practices and trends from these contexts, while also providing opportunities for exposure to international perspectives. This could enhance the leaders' ability to implement globally informed digital strategies in their schools.

However, there are limitations to consider. The relatively small sample size (N=30) may limit the generalizability of the findings to a broader population of school leaders. Additionally, the study's reliance on self-reported data may introduce bias, as leaders may overestimate their digital competence or the effectiveness of their leadership. Future research could address these limitations by including a larger and more diverse sample, as well as incorporating objective measures of digital competence and leadership effectiveness.

Table 1.2
Demographic Profile of the Teachers

N = 60

Demographics	f	%	Std. Dev.	Skewness	Kurtosis
Highest Educational Attainment	f	%	Std. Dev.	Skewness	Kurtosis

Demographics	f	%	Std. Dev.	Skewness	Kurtosis
Doctoral degree	6	10	7.528	-0.281	-2.088
Earned doctoral units	12	20			
Master's degree	23	39			
Earned masteral units	19	31			
Total	60	100			
Trainings Attended	f	%	Std. Dev.	Skewness	Kurtosis
International	5	8	9.201	0.601	0.830
National	16	27			
Regional	27	45			
Division	12	20			
Total	60	100			
No. of Years of Teaching	f	%	Std. Dev.	Skewness	Kurtosis
20 years and over	2	3	9.925	0.798	0.341

Demographics	f	%	Std. Dev.	Skewness	Kurtosis
15-19 years	14	24			
10-14 years	27	45			
5-9 years	13	22			
less than 5 years	4	6			
Total	60	100			
Age	f	%	Std. Dev.	Skewness	Kurtosis
61-64 years old	2	4	5.593	0.273	-0.965
56-60 years	2	4			
51-55 years	7	12			
46-50 years	7	12			
41-45 years	11	18			
36-40 years	18	28			
35 years or younger	13	22			
Total	60	100			
Gender	f	%	Std. Dev.	Skewness	Kurtosis
Male	29	49	1.414	-	-

Demographics	f	%	Std. Dev.	Skewness	Kurtosis
Female	31	51			
Total	60	100			

The highest educational attainment among the teachers shows a significant level of advanced education, with 39% holding a master's degree and 31% having earned masteral units. Additionally, 20% have earned doctoral units, and 10% hold a doctoral degree. This high level of educational attainment suggests that the teachers are well-qualified and likely to value continuous professional development, which is crucial for enhancing digital competence. The standard deviation of 7.528, skewness of -0.281, and kurtosis of -2.088 indicate a relatively normal distribution with a slight negative skew, suggesting that most teachers have advanced degrees, with fewer at the lower and higher ends of the educational spectrum.

The training attended by the teachers varies, with the majority having attended regional (45%) and national (27%) training sessions. This indicates a strong emphasis on professional development at broader levels, which is essential for staying updated with the latest digital trends and practices. A smaller percentage have attended division-level (20%) and international (8%) training, suggesting that while there is some exposure to global best

practices, most training is focused on national and regional contexts. The standard deviation of 9.201, skewness of 0.601, and kurtosis of 0.830 indicate a positively skewed distribution with a moderate peak, suggesting that most teachers have attended regional and national training, with fewer attending division and international training.

The number of years of teaching experience among the teachers varies significantly, with the majority having 10-14 years of experience (45%) and 15-19 years (24%). This indicates a substantial level of experience among the teachers, which could positively impact their ability to integrate digital tools and practices effectively. Teachers with over 20 years of experience (3%) and those with less than 5 years (6%) represent the extremes, suggesting a mix of seasoned and relatively new teachers. The standard deviation of 9.925, skewness of 0.798, and kurtosis of 0.341 indicate a positively skewed distribution with a moderate peak, suggesting that most teachers have moderate to high levels of experience, with fewer at the extremes.

The age distribution of the teachers shows a diverse range, with the majority falling between 36 to 40 years old (28%) and 35 years or younger (22%). This indicates a relatively young teaching cohort, which could be advantageous for digital competence as younger teachers might be more adaptable and open to integrating new technologies. However, the presence of teachers in the older age brackets, such as those aged 61-64 years (4%)

and 56-60 years (4%), suggests a blend of experience and potentially more traditional approaches to teaching. The standard deviation of 5.593, skewness of 0.273, and kurtosis of -0.965 indicate a relatively normal distribution with a slight positive skew, meaning there are more younger teachers than older ones.

Gender distribution among the teachers shows a nearly equal balance, with 51% female and 49% male. This gender balance could influence the teaching styles and approaches to digital integration, as research often suggests that male and female teachers may adopt different strategies for using technology in the classroom. The standard deviation of 1.414 indicates minimal variability in the gender distribution, suggesting a well-balanced representation of both genders in the teaching workforce.

The implications of these findings are significant for the development of a digital leadership skill program. The high level of educational attainment among the teachers suggests that they are likely to value and engage in professional development, making them receptive to a well-designed digital competence program. The emphasis on regional and national training indicates that the program should incorporate best practices and trends from these contexts, while also providing opportunities for exposure to international perspectives. This could enhance the teachers' ability to implement globally informed digital strategies in their classrooms.

The varying levels of teaching experience among the teachers suggest that the digital competence program should cater to both seasoned and new teachers, providing advanced training for experienced teachers and foundational training for those with less experience. The relatively young age of the teachers suggests a potential for greater adaptability and openness to digital innovation. However, the presence of older teachers indicates a need for tailored training that addresses the varying levels of digital proficiency and comfort with technology.

The nearly equal gender distribution highlights the importance of inclusive training approaches that leverage the strengths of both male and female teachers. This balanced representation can contribute to a more comprehensive and effective digital competence program that addresses the diverse needs and perspectives of the teaching workforce.

However, there are limitations to consider. The relatively small sample size (N=60) may limit the generalizability of the findings to a broader population of teachers. Additionally, the study's reliance on self-reported data may introduce bias, as teachers may overestimate their digital competence or the effectiveness of their training. Future research could address these limitations by including a larger and more diverse sample, as well as incorporating objective measures of digital competence and training effectiveness.

2. School Leader’s Digital Leadership and Teacher’s Digital Competence in their Own Transformative Skills

Table 2

School Leader’s Digital Leadership and Teacher’s Digital Competence in their Own Transformative Skills

Indicators	Mean	Verbal Description
Teachers with strong digital competence are able to enhance their instructional strategies by incorporating diverse technological tools into their lessons.	4.89	Highly Competent
Digital leadership involves not only using technology but also fostering a culture that encourages innovation and digital collaboration among staff and learners.	4.86	Highly Competent

Indicators	Mean	Verbal Description
School leaders' ability to advocate for digital learning resources is crucial in ensuring that all teachers have access to necessary tools and support.	4.83	Highly Competent
Effective digital leadership involves school leaders using data-driven insights to make informed decisions about technology integration and curriculum development.	4.73	Highly Competent
Teachers' digital competence directly influences their ability to personalize learning, adapting resources and	4.62	Highly Competent

Indicators	Mean	Verbal Description
strategies to meet learners' needs.		
Digital leadership skills enable school leaders to implement professional development programs that support teachers in improving their digital skills.	4.43	Highly Competent
Teachers with transformative digital skills are more confident in using technology to assess learner progress and adjust teaching methods accordingly.	3.8	Competent
School leaders who model effective digital practices inspire teachers to adopt new technologies and	3.66	Competent

Indicators	Mean	Verbal Description
integrate them into their teaching methods.		
School leaders with high digital leadership skills can effectively guide the integration of digital tools and resources into the school's teaching and learning environment.	3.51	Competent
School leaders play a crucial role in creating an environment where both teachers and learners feel motivated to explore and experiment with new digital technologies.	3.51	Competent
Transformative leadership in education requires school leaders	3.33	Moderately Competent

Indicators	Mean	Verbal Description
to develop strategies that empower teachers to become digital leaders in their classrooms.		
Teachers with strong digital competencies can create more engaging, interactive, and learner-centered learning experiences.	3.33	Moderately Competent
School leaders who invest in developing both their own digital skills and those of their teachers help establish a sustainable digital culture within the school, benefiting both teachers and learners.	2.84	Moderately Competent
Teachers' digital competence contributes	2.77	Moderately Competent

Indicators	Mean	Verbal Description
to improving learner learning outcomes by providing more interactive, flexible, and adaptive learning pathways.		
A collaborative approach between school leaders and teachers is necessary for developing a school-wide vision of digital education that embraces innovation and continuous improvement.	2.71	Moderately Competent
Grand Mean	3.85	Competent

The analysis of Table 2, which examines school leaders' digital leadership and teachers' digital competence in their transformative skills, reveals several key insights that are crucial for understanding the dynamics

of digital integration in educational settings. The indicators provided in the table highlight various aspects of digital competence and leadership, with mean scores and verbal descriptions that offer a comprehensive overview of the current state of digital skills among school leaders and teachers.

The highest mean score of 4.89, indicating "Highly Competent," is associated with teachers' ability to enhance their instructional strategies by incorporating diverse technological tools into their lessons. This suggests that teachers are proficient in using technology to improve their teaching methods, which is essential for creating engaging and effective learning experiences for learners. The high competence in this area reflects a strong foundation in digital skills, enabling teachers to leverage technology to its fullest potential.

Similarly, the mean score of 4.86 for digital leadership, which involves fostering a culture of innovation and digital collaboration, underscores the importance of creating an environment that encourages the use of technology. School leaders who excel in this area are likely to inspire their staff and learners to embrace digital tools, leading to a more collaborative and innovative educational atmosphere. This high level of competence indicates that school leaders are not only proficient in using technology themselves but also in promoting its use among others.

The ability of school leaders to advocate for digital learning resources, with a mean score of 4.83, is another critical aspect of digital leadership.

This competence ensures that teachers have access to the necessary tools and support to integrate technology into their teaching. Effective advocacy for digital resources is crucial for overcoming barriers to technology adoption and ensuring that all teachers can enhance their digital skills. The high competence in this area highlights the proactive role of school leaders in facilitating digital transformation.

Effective digital leadership also involves using data-driven insights to make informed decisions about technology integration and curriculum development, as indicated by the mean score of 4.73. This competence is essential for ensuring that technology is used strategically to enhance educational outcomes. School leaders who are skilled in data-driven decision-making can better align technology initiatives with the needs of their schools, leading to more effective and targeted interventions.

Teachers' digital competence directly influences their ability to personalize learning, with a mean score of 4.62. This competence allows teachers to adapt resources and strategies to meet the diverse needs of their learners, creating more individualized and effective learning experiences. The high competence in this area suggests that teachers are adept at using technology to tailor their instruction, which is crucial for addressing the varying learning styles and abilities of learners.

Digital leadership skills also enable school leaders to implement professional development programs that support teachers in improving their

digital skills, as indicated by the mean score of 4.43. This competence is vital for ensuring that teachers receive ongoing training and support to enhance their digital competence. Effective professional development programs can help teachers stay updated with the latest technological advancements and best practices, leading to continuous improvement in their digital skills.

The mean scores for the remaining indicators, ranging from 3.8 to 2.71, indicate varying levels of competence in different aspects of digital leadership and competence. For instance, teachers with transformative digital skills are more confident in using technology to assess learner progress and adjust teaching methods accordingly, with a mean score of 3.8. This competence is essential for creating a responsive and adaptive learning environment. However, the lower mean scores for indicators such as school leaders' ability to create a sustainable digital culture (2.84) and the collaborative approach between school leaders and teachers (2.71) suggest areas for improvement.

The grand mean score of 3.85, indicating "Competent," provides an overall assessment of the digital leadership and competence of school leaders and teachers. While the scores indicate a generally high level of competence, there are areas where further development is needed. For instance, the lower scores for creating a sustainable digital culture and

fostering collaboration highlight the need for targeted interventions to strengthen these aspects of digital leadership.

The implications of these findings are significant for the development of a digital leadership skill program. The high competence in areas such as instructional strategies, innovation, and advocacy for digital resources suggests that school leaders and teachers have a strong foundation in digital skills. However, the areas with lower competence scores indicate opportunities for improvement. A digital leadership skill program should focus on enhancing the areas of weakness while building on the existing strengths.

For instance, the program could include modules on creating a sustainable digital culture, fostering collaboration between school leaders and teachers, and developing strategies for continuous improvement. In addressing these areas, the program can help school leaders and teachers become more effective in their digital leadership and competence, ultimately leading to better educational outcomes.

However, there are limitations to consider. The reliance on self-reported data may introduce bias, as participants may overestimate their competence. Additionally, the study's sample size may limit the generalizability of the findings. Future research could address these limitations by including a larger and more diverse sample and incorporating objective measures of digital competence and leadership effectiveness.

3. Significant Relationship between the Demographic Profile of the School Leaders and Teachers and their Digital Competence in their Own Transformative Skills

Table 3.1

Significant Relationship between the Demographic Profile of the School Leaders and their Digital Competence in their Own Transformative Skills

Profile	Profile	Digital Competence
Age	Chi Square Statistic	10.124
Age	p-Value	0.341
Age	Decision	Not Sig.
Age	Cramer's V (Effect Size)	0.184
Gender	Chi Square Statistic	18.448
Gender	p-Value	0.030
Gender	Decision	Sig.
Gender	Cramer's V (Effect Size)	0.248
No. of Years as School Head	Chi Square Statistic	26.698

Profile	Profile	Digital Competence
No. of Years as School Head	p-Value	0.002
No. of Years as School Head	Decision	Sig.
No. of Years as School Head	Cramer's V (Effect Size)	0.298
Highest Educational Attainment	Chi Square Statistic	10.103
Highest Educational Attainment	p-Value	0.342
Highest Educational Attainment	Decision	Not Sig.
Highest Educational Attainment	Cramer's V (Effect Size)	0.184
Trainings Attended	Chi Square Statistic	18.595
Trainings Attended	p-Value	0.029
Trainings Attended	Decision	Sig.
Trainings Attended	Cramer's V (Effect Size)	0.249
Total	Chi Square Statistic	29.176
Total	p-Value	0.001

Profile	Profile	Digital Competence
Total	Decision	Sig.
Total	Cramer's V (Effect Size)	0.312

The analysis of Table 3.1, which examines the significant relationship between the demographic profile of school leaders and their digital competence in their own transformative skills, provides valuable insights into the factors that influence digital leadership. The table presents the Chi Square statistics, p-values, decisions on significance, and Cramer's V effect sizes for various demographic factors, offering a comprehensive overview of the relationships between these variables.

Starting with age, the Chi Square statistic is 10.124 with a p-value of 0.341, indicating that the relationship between age and digital competence is not statistically significant. The decision of "Not Sig." and a Cramer's V effect size of 0.184 suggest a weak association between age and digital competence. This finding implies that age does not play a significant role in determining the digital competence of school leaders. It suggests that digital competence can be developed and maintained across different age groups, highlighting the importance of continuous professional development and training for all leaders, regardless of their age.

Gender, on the other hand, shows a significant relationship with digital competence, with a Chi Square statistic of 18.448 and a p-value of 0.030. The decision of "Sig." and a Cramer's V effect size of 0.248 indicate a moderate association between gender and digital competence. This finding suggests that gender may influence digital competence, with potential differences in how male and female leaders approach and integrate digital tools and practices. The moderate effect size indicates that while gender is a significant factor, it is not the sole determinant of digital competence. This highlights the need for gender-sensitive approaches in digital leadership training programs to ensure that both male and female leaders can develop their digital skills effectively.

The number of years as a school head also shows a significant relationship with digital competence, with a Chi Square statistic of 26.698 and a p-value of 0.002. The decision of "Sig." and a Cramer's V effect size of 0.298 indicate a moderate to strong association between years of experience and digital competence. This finding suggests that more experienced school leaders tend to have higher digital competence, possibly due to their longer exposure to leadership roles and opportunities for professional development. The moderate to strong effect size underscores the importance of experience in developing digital leadership skills, suggesting that seasoned leaders may have a better understanding of how to integrate digital tools effectively. However, it also highlights the need for

targeted support for less experienced leaders to help them build their digital competence.

Highest educational attainment, with a Chi Square statistic of 10.103 and a p-value of 0.342, shows no significant relationship with digital competence. The decision of "Not Sig." and a Cramer's V effect size of 0.184 suggest a weak association between educational attainment and digital competence. This finding implies that having higher educational qualifications does not necessarily translate to higher digital competence. It highlights the importance of practical experience and ongoing training in developing digital skills, rather than relying solely on formal education.

Trainings attended show a significant relationship with digital competence, with a Chi Square statistic of 18.595 and a p-value of 0.029. The decision of "Sig." and a Cramer's V effect size of 0.249 indicate a moderate association between the number and type of trainings attended and digital competence. This finding suggests that professional development opportunities play a crucial role in enhancing digital competence. The moderate effect size indicates that attending various training sessions, especially those focused on digital skills, can significantly improve a leader's ability to integrate and utilize digital tools effectively. This underscores the importance of providing ongoing and targeted professional development opportunities for school leaders to enhance their digital competence.

The total Chi Square statistic of 29.176 with a p-value of 0.001 indicates a significant overall relationship between the demographic profile of school leaders and their digital competence. The decision of "Sig." and a Cramer's V effect size of 0.312 suggest a moderate to strong association between the combined demographic factors and digital competence. This finding highlights the multifaceted nature of digital competence, which is influenced by a combination of factors such as gender, years of experience, and professional development opportunities. It underscores the need for a holistic approach to developing digital leadership skills, taking into account the diverse backgrounds and experiences of school leaders.

The implications of these findings are significant for the development of digital leadership training programs. The lack of a significant relationship between age and digital competence suggests that training programs should be inclusive of all age groups, providing opportunities for continuous learning and development. The significant relationship between gender and digital competence highlights the need for gender-sensitive approaches in training programs, ensuring that both male and female leaders can develop their digital skills effectively.

The significant relationship between years of experience and digital competence underscores the importance of providing targeted support for less experienced leaders, helping them build their digital competence through mentorship and professional development opportunities. The lack

of a significant relationship between educational attainment and digital competence suggests that practical experience and ongoing training are more important than formal education in developing digital skills.

The significant relationship between trainings attended and digital competence highlights the importance of providing ongoing and targeted professional development opportunities for school leaders. Training programs should focus on enhancing digital skills and providing practical, hands-on experiences that enable leaders to integrate digital tools effectively.

However, there are limitations to consider. The reliance on self-reported data may introduce bias, as participants may overestimate their competence. Additionally, the study's sample size may limit the generalizability of the findings. Future research could address these limitations by including a larger and more diverse sample and incorporating objective measures of digital competence and leadership effectiveness.

Table 3.2

Significant Relationship between the Demographic Profile of Teachers and their Digital Competence in their Own Transformative Skills

Profile	Profile	Digital Competence
Highest Educational Attainment	Chi Square Statistic	14.631

Profile	Profile	Digital Competence
Highest Educational Attainment	p-Value	0.102
Highest Educational Attainment	Decision	Not Sig.
Highest Educational Attainment	Cramer's V (Effect Size)	0.221
Trainings Attended	Chi Square Statistic	16.744
Trainings Attended	p-Value	0.053
Trainings Attended	Decision	Not Sig.
Trainings Attended	Cramer's V (Effect Size)	0.236
No. of Years of Teaching	Chi Square Statistic	11.426
No. of Years of Teaching	p-Value	0.248
No. of Years of Teaching	Decision	Not Sig.
No. of Years of Teaching	Cramer's V (Effect Size)	0.195
Age	Chi Square Statistic	13.237
Age	p-Value	0.152

Profile	Profile	Digital Competence
Age	Decision	Not Sig.
Age	Cramer's V (Effect Size)	0.210
Gender	Chi Square Statistic	11.167
Gender	p-Value	0.264
Gender	Decision	Not Sig.
Gender	Cramer's V (Effect Size)	0.193
Total	Chi Square Statistic	22.581
Total	p-Value	0.007
Total	Decision	Sig.
Total	Cramer's V (Effect Size)	0.274

The analysis of Table 3.2, which examines the significant relationship between the demographic profile of teachers and their digital competence in their own transformative skills, provides important insights into the factors that influence teachers' digital abilities. The table presents the Chi Square statistics, p-values, decisions on significance, and Cramer's V effect sizes for various demographic factors, offering a comprehensive overview of the relationships between these variables.

Starting with the highest educational attainment, the Chi Square statistic is 14.631 with a p-value of 0.102, indicating that the relationship between educational attainment and digital competence is not statistically significant. The decision of "Not Sig." and a Cramer's V effect size of 0.221 suggest a weak to moderate association between educational attainment and digital competence. This finding implies that having higher educational qualifications does not necessarily translate to higher digital competence among teachers. It highlights the importance of practical experience and ongoing professional development in developing digital skills, rather than relying solely on formal education.

Trainings attended show a Chi Square statistic of 16.744 with a p-value of 0.053, which is close to the threshold for significance but ultimately not statistically significant. The decision of "Not Sig." and a Cramer's V effect size of 0.236 indicate a weak to moderate association between the number and type of trainings attended and digital competence. This finding suggests that while professional development opportunities are important, they may not be the sole determinant of digital competence. The near-significant p-value indicates that further research with a larger sample size might reveal a more definitive relationship.

The number of years of teaching experience, with a Chi Square statistic of 11.426 and a p-value of 0.248, shows no significant relationship with digital competence. The decision of "Not Sig." and a Cramer's V effect size

of 0.195 suggest a weak association between years of teaching experience and digital competence. This finding implies that the length of teaching experience does not significantly influence teachers' digital competence. It suggests that digital skills can be developed at any stage of a teacher's career, emphasizing the need for continuous professional development and training.

Age, with a Chi Square statistic of 13.237 and a p-value of 0.152, also shows no significant relationship with digital competence. The decision of "Not Sig." and a Cramer's V effect size of 0.210 suggest a weak to moderate association between age and digital competence. This finding implies that age does not play a significant role in determining the digital competence of teachers. It suggests that digital competence can be developed and maintained across different age groups, highlighting the importance of providing training and support for teachers of all ages.

Gender, with a Chi Square statistic of 11.167 and a p-value of 0.264, shows no significant relationship with digital competence. The decision of "Not Sig." and a Cramer's V effect size of 0.193 suggest a weak association between gender and digital competence. This finding implies that gender does not significantly influence digital competence among teachers. It suggests that both male and female teachers can develop their digital skills effectively, given the right training and support.

The total Chi Square statistic of 22.581 with a p-value of 0.007 indicates a significant overall relationship between the demographic profile of teachers and their digital competence. The decision of "Sig." and a Cramer's V effect size of 0.274 suggest a moderate association between the combined demographic factors and digital competence. This finding highlights the multifaceted nature of digital competence, which is influenced by a combination of factors such as educational attainment, training, years of experience, age, and gender. It underscores the need for a holistic approach to developing digital competence, taking into account the diverse backgrounds and experiences of teachers.

The implications of these findings are significant for the development of digital competence training programs for teachers. The lack of significant relationships between individual demographic factors and digital competence suggests that training programs should be inclusive and cater to teachers of all backgrounds. The significant overall relationship indicates that a combination of factors influences digital competence, highlighting the need for a comprehensive approach to training that addresses multiple aspects of teachers' professional development.

For instance, training programs should focus on providing practical, hands-on experiences that enable teachers to integrate digital tools effectively. They should also offer ongoing professional development opportunities that keep teachers updated with the latest technological

advancements and best practices. Additionally, training programs should be designed to be inclusive of teachers of all ages, genders, and levels of experience, ensuring that everyone has the opportunity to develop their digital skills.

However, there are limitations to consider. The reliance on self-reported data may introduce bias, as participants may overestimate their competence. Additionally, the study's sample size may limit the generalizability of the findings. Future research could address these limitations by including a larger and more diverse sample and incorporating objective measures of digital competence and training effectiveness.

4. Factors Affecting School Leader’s Digital Leadership and Teacher’s Digital Competence

Table 4
Factors Affecting School Leader’s Digital Leadership and Teacher’s Digital Competence

Indicators	Mean	Verbal Description
The presence of clear school policies and guidelines related to digital tools and technology integration	4.88	Strong Factor

Indicators	Mean	Verbal Description
influences both school leaders and teachers' effectiveness in adopting technology.		
A school leader's vision and leadership style, particularly in adopting and promoting technology, play a pivotal role in fostering a culture of digital competence.	4.87	Strong Factor
Teachers' knowledge of subject content and pedagogical approaches affects how they integrate digital tools into their teaching practices to enhance learning outcomes.	4.78	Strong Factor

Indicators	Mean	Verbal Description
The support provided by the Department of Education and other educational bodies influences the availability of digital resources and professional development programs.	4.73	Strong Factor
The cultural attitudes of the school community toward technology adoption influence how readily digital tools are accepted and integrated into educational practices.	4.56	Strong Factor
1The availability of resources, such as hardware, software, and internet access,	4.36	Strong Factor

Indicators	Mean	Verbal Description
significantly impacts the ability of school leaders and teachers to integrate digital tools into their practices.		
The level of administrative and peer support that school leaders receive affects their ability to implement digital leadership initiatives successfully.	3.88	Factor
Teachers' collaboration with colleagues and access to a professional learning community can significantly improve their digital skills and integration of technology.	3.71	Factor

Indicators	Mean	Verbal Description
School leaders' personal attitudes toward technology and innovation greatly influence the adoption and use of digital tools within the school.	3.53	Factor
The level of professional development opportunities for school leaders and teachers plays a crucial role in enhancing their digital competence and leadership skills.	3.52	Factor
School leaders' ability to allocate time for digital training and provide continuous support for teachers impacts their	3.41	Factor

Indicators	Mean	Verbal Description
development of digital leadership skills.		
Teachers' access to ongoing digital training and mentorship from more experienced colleagues or digital experts helps them develop and refine their digital competence over time.	3.37	Moderate Factor
Teachers' prior experience with technology and their willingness to embrace new digital tools are key factors in determining their digital competence.	3.36	Moderate Factor
The school's infrastructure and	2.67	Moderate Factor

Indicators	Mean	Verbal Description
access to high-speed internet determine how effectively digital tools can be used for both leadership and teaching purposes.		
Teachers' confidence in using technology affects their willingness to experiment with and integrate new digital tools into their teaching practices.	2.3	Slight Factor
Grand Mean	3.86	Factor

The analysis of Table 4, which examines the factors affecting school leaders' digital leadership and teachers' digital competence, provides a comprehensive understanding of the various elements that influence the integration of digital tools in educational settings. The table presents mean scores and verbal descriptions for each indicator, offering insights into the relative importance of these factors.

The highest mean score of 4.88, indicating a "Strong Factor," is associated with the presence of clear school policies and guidelines related to digital tools and technology integration. This suggests that well-defined policies and guidelines are crucial for both school leaders and teachers to effectively adopt and integrate technology. Clear policies provide a framework for consistent and effective use of digital tools, ensuring that all stakeholders understand the expectations and best practices for technology integration. This finding highlights the importance of establishing comprehensive digital policies at the school level to support digital transformation.

Similarly, the mean score of 4.87 for a school leader's vision and leadership style underscores the pivotal role that leadership plays in fostering a culture of digital competence. School leaders who actively promote and adopt technology set a positive example for their staff and learners, encouraging them to embrace digital tools. This strong factor indicates that visionary and supportive leadership is essential for creating an environment where digital competence can thrive. It suggests that leadership training programs should emphasize the development of digital leadership skills and the importance of a clear vision for technology integration.

Teachers' knowledge of subject content and pedagogical approaches, with a mean score of 4.78, is another strong factor affecting digital

competence. This finding suggests that teachers who are well-versed in their subject matter and effective teaching strategies are better equipped to integrate digital tools into their practices. Knowledgeable teachers can leverage technology to enhance learning outcomes, making their lessons more engaging and effective. This highlights the need for professional development programs that focus on both content knowledge and pedagogical skills, ensuring that teachers can effectively use technology to support their teaching.

The support provided by the Department of Education and other educational bodies, with a mean score of 4.73, is also a strong factor influencing digital competence. This finding suggests that external support plays a significant role in providing the necessary resources and professional development opportunities for school leaders and teachers. Support from educational authorities can help schools access funding, training, and digital resources, which are essential for successful technology integration. This underscores the importance of collaboration between schools and educational bodies to ensure that schools have the support they need to enhance digital competence.

The cultural attitudes of the school community toward technology adoption, with a mean score of 4.56, indicate that the acceptance and integration of digital tools are influenced by the broader school culture. A positive attitude toward technology within the school community can

facilitate the adoption of digital tools, making it easier for school leaders and teachers to implement technology initiatives. This finding highlights the importance of fostering a culture that values and supports technology integration, which can be achieved through awareness campaigns, training, and involving all stakeholders in the digital transformation process.

The availability of resources, such as hardware, software, and internet access, with a mean score of 4.36, is another strong factor affecting digital competence. This finding suggests that access to the necessary technological resources is crucial for both school leaders and teachers to integrate digital tools effectively. Without adequate resources, even the most skilled and motivated teachers may struggle to implement technology in their teaching. This highlights the need for investment in digital infrastructure to ensure that all schools have the resources they need to support digital learning.

The level of administrative and peer support, with a mean score of 3.88, is a significant factor affecting digital leadership. This finding suggests that school leaders who receive support from their administration and peers are more likely to successfully implement digital initiatives. Support from colleagues and administrators can provide the encouragement and resources needed to overcome challenges and sustain digital transformation efforts. This underscores the importance of creating a supportive environment where school leaders feel empowered to lead digital initiatives.

Teachers' collaboration with colleagues and access to a professional learning community, with a mean score of 3.71, is another important factor affecting digital competence. This finding suggests that collaboration and professional networks can significantly enhance teachers' digital skills and their ability to integrate technology. Working with colleagues and participating in professional learning communities can provide teachers with opportunities to share best practices, learn from each other, and receive feedback on their use of technology. This highlights the importance of fostering a collaborative culture and providing opportunities for teachers to engage in professional networks.

School leaders' personal attitudes toward technology and innovation, with a mean score of 3.53, also influence digital competence. This finding suggests that school leaders who have a positive attitude toward technology and are open to innovation are more likely to adopt and promote digital tools within their schools. Personal attitudes can shape the overall approach to technology integration, influencing how digital initiatives are implemented and supported. This underscores the importance of developing a positive mindset toward technology among school leaders, which can be achieved through training and exposure to successful digital practices.

The level of professional development opportunities for school leaders and teachers, with a mean score of 3.52, plays a crucial role in enhancing digital competence. This finding suggests that ongoing training and

development are essential for building digital skills and leadership capabilities. Professional development programs that focus on digital competence can help teachers stay updated with the latest technological advancements and best practices, ensuring that they can effectively integrate technology into their teaching and leadership practices.

School leaders' ability to allocate time for digital training and provide continuous support for teachers, with a mean score of 3.41, impacts the development of digital leadership skills. This finding suggests that time management and ongoing support are important for sustaining digital initiatives. School leaders who prioritize digital training and provide continuous support can help teachers develop their digital skills over time, leading to more effective technology integration.

Teachers' access to ongoing digital training and mentorship, with a mean score of 3.37, is a moderate factor affecting digital competence. This finding suggests that continuous training and mentorship from experienced colleagues or digital experts can help teachers refine their digital skills. Ongoing support and guidance can provide teachers with the confidence and knowledge they need to effectively use technology in their teaching.

Teachers' prior experience with technology and their willingness to embrace new digital tools, with a mean score of 3.36, are also moderate factors affecting digital competence. This finding suggests that previous experience with technology and a positive attitude toward new tools can

influence teachers' ability to integrate digital tools. Encouraging teachers to experiment with new technologies and providing opportunities for hands-on experience can help build their digital competence.

The school's infrastructure and access to high-speed internet, with a mean score of 2.67, determine how effectively digital tools can be used for both leadership and teaching purposes. This finding suggests that the physical infrastructure of the school, including internet access, plays a significant role in supporting digital initiatives. Ensuring that schools have reliable internet access and up-to-date infrastructure is essential for successful technology integration.

Teachers' confidence in using technology, with a mean score of 2.3, is a slight factor affecting digital competence. This finding suggests that confidence in using technology can influence teachers' willingness to experiment with and integrate new digital tools. Building teachers' confidence through training, support, and positive reinforcement can help them become more comfortable with using technology in their teaching.

The grand mean score of 3.86, indicating "Factor," provides an overall assessment of the factors affecting digital leadership and competence. While the scores indicate that several factors strongly influence digital competence, there are areas where further development is needed. The findings highlight the importance of addressing both the strong and

moderate factors to enhance digital competence among school leaders and teachers.

The implications of these findings are significant for the development of digital leadership and competence training programs. The strong factors, such as clear policies, visionary leadership, and access to resources, should be prioritized in training programs to ensure that school leaders and teachers have the necessary support and guidance to integrate technology effectively. The moderate factors, such as ongoing training, mentorship, and infrastructure, should also be addressed to provide a comprehensive approach to digital competence development.

However, there are limitations to consider. The reliance on self-reported data may introduce bias, as participants may overestimate the influence of certain factors. Additionally, the study's sample size may limit the generalizability of the findings. Future research could address these limitations by including a larger and more diverse sample and incorporating objective measures of the factors affecting digital competence.

5. Proposed Digital Leadership Skill Program

Module	Objective	Activities	Resources	Duration	Evaluation Method
1. Introducti	Understan d the	- Interactive	- Presentat	2 hours	- Pre- and post-

Module	Objective	Activities	Resources	Duration	Evaluation Method
on to Digital Leadership	basics of digital leadership and its importance in education.	lectures - Group discussions	ion slides - Reading materials		session quizzes - Participation in discussions
2. Developing a Digital Vision	Create a clear and actionable digital vision for the school.	- Vision statement workshop - Case study analysis	- Vision statement template s - Case studies	3 hours	- Vision statement submission - Peer review
3. Digital Policies and Guidelines	Establish clear policies and guidelines for	- Policy drafting sessions - Role-playing scenarios	- Policy template s - Scenario scripts	3 hours	- Policy document submission - Role-play performance

Module	Objective	Activities	Resources	Duration	Evaluation Method
	technology use.				
4. Fostering a Digital Culture	Promote a culture of innovation and digital collaboration.	- Team-building activities - Innovation challenge	- Team-building kits - Innovation challenge guidelines	4 hours	- Team activity reports - Innovation project presentations
5. Data-Driven Decision Making	Use data to inform technology integration and curriculum	- Data analysis workshops - Real-world data projects	- Data sets - Analysis software	4 hours	- Data project submission - Analysis report

Module	Objective	Activities	Resources	Duration	Evaluation Method
	development.				
6. Professional Development for Digital Skills	Implement effective professional development programs for teachers.	- Training needs assessment - PD program design	- Assessment tools - PD program templates	3 hours	- PD program plan - Feedback from participants
7. Digital Resource Management	Advocate for and manage digital learning resources.	- Resource inventory - Budget planning exercises	- Inventory templates - Budget planning tools	3 hours	- Resource management plan - Budget proposal

Module	Objective	Activities	Resources	Duration	Evaluation Method
8. Enhancing Teacher Digital Competence	Support teachers in developing their digital skills.	- Mentorship programs - Peer coaching sessions	- Mentorship guideline s - Coaching framework s	4 hours	- Mentorship logs - Coaching feedback
9. Digital Assessment and Evaluation	Use digital tools to assess and evaluate learner progress.	- Digital assessment workshops - Tool demonstrations	- Assessment tools - Demo software	3 hours	- Assessment tool implementation - Evaluation reports
10. Sustaining Digital Initiatives	Develop strategies to sustain digital	- Sustainability planning	- Planning template s - Goal-	3 hours	- Sustainability plan - Goal

Module	Objective	Activities	Resources	Duration	Evaluation Method
	initiatives over time.	Long-term goal setting	setting frameworks		achievement tracking
11. Building a Supportive Digital Environment	Create an environment that supports digital innovation.	- Infrastructure assessment - Support network development	- Assessment tools - Network building guides	3 hours	- Infrastructure improvement plan - Support network map
12. Continuous Improvement and Reflection	Reflect on digital leadership practices and seek continuous improvement.	- Reflective journaling - Peer feedback sessions	- Journaling template - Feedback forms	2 hours	- Reflective journal entries - Peer feedback summaries

The proposed Digital Leadership Skill Program is designed to enhance the digital leadership skills of school leaders and the digital competence of teachers through a series of structured modules. Each module focuses on a specific aspect of digital leadership and competence, providing practical activities and resources to ensure effective learning and application. The program begins with an introduction to digital leadership, emphasizing the importance of understanding the basics and setting the stage for more advanced topics. Interactive lectures and group discussions are used to engage participants and provide a solid foundation for the rest of the program.

Developing a digital vision is a crucial step in the program, where participants create a clear and actionable vision for their schools. Vision statement workshops and case study analyses help school leaders articulate their goals and strategies for technology integration. This module ensures that leaders have a well-defined direction for their digital initiatives, which is essential for fostering a culture of digital competence.

Establishing clear policies and guidelines for technology use is another key component of the program. Policy drafting sessions and role-playing scenarios enable participants to develop comprehensive policies that support consistent and effective use of digital tools. These policies provide

a framework for all stakeholders, ensuring that everyone understands the expectations and best practices for technology integration.

Fostering a digital culture is essential for promoting innovation and collaboration. Team-building activities and innovation challenges are used to create an environment where digital tools are embraced and utilized effectively. This module emphasizes the importance of a supportive and collaborative culture, which is crucial for the successful implementation of digital initiatives.

Data-driven decision-making is a critical skill for school leaders, and the program includes workshops and real-world data projects to develop this competence. Participants learn to use data to inform technology integration and curriculum development, ensuring that their decisions are based on evidence and aligned with the needs of their schools. This module helps leaders make informed choices that enhance educational outcomes.

Professional development for digital skills is another important aspect of the program. Training needs assessments and professional development program design activities help school leaders implement effective training programs for their teachers. In focusing on the specific needs of their staff, leaders can provide targeted support that enhances digital competence across the school.

Advocating for and managing digital learning resources is crucial for ensuring that teachers have access to the necessary tools and support.

Resource inventory and budget planning exercises enable participants to develop comprehensive plans for managing digital resources. This module ensures that school leaders can effectively allocate resources and advocate for the tools their teachers need to succeed.

Supporting teachers in developing their digital skills is a key focus of the program. Mentorship programs and peer coaching sessions provide opportunities for teachers to learn from each other and receive guidance from more experienced colleagues. This module emphasizes the importance of ongoing support and collaboration in building digital competence.

Digital assessment and evaluation are essential for measuring learner progress and adjusting teaching methods accordingly. Workshops and tool demonstrations help participants develop their skills in using digital assessment tools. This module ensures that teachers can effectively use technology to monitor and enhance learner learning.

Sustaining digital initiatives over time requires careful planning and long-term goal setting. Sustainability planning and goal-setting activities help participants develop strategies for maintaining their digital initiatives. This module emphasizes the importance of continuous improvement and long-term thinking in digital leadership.

Creating a supportive digital environment is crucial for the success of digital initiatives. Infrastructure assessments and support network development activities help participants identify and address the needs of

their schools. This module ensures that school leaders can create an environment that supports digital innovation and provides the necessary resources for success.

Continuous improvement and reflection are essential for effective digital leadership. Reflective journaling and peer feedback sessions provide opportunities for participants to reflect on their practices and seek continuous improvement. This module emphasizes the importance of ongoing learning and adaptation in digital leadership.

The evaluation methods used in the program are designed to assess both the understanding and practical implementation of the skills learned. Pre- and post-session quizzes, participation in discussions, vision statement submissions, policy document submissions, role-play performances, team activity reports, innovation project presentations, data project submissions, analysis reports, professional development program plans, feedback from participants, resource management plans, budget proposals, mentorship logs, coaching feedback, assessment tool implementations, evaluation reports, sustainability plans, goal achievement tracking, infrastructure improvement plans, support network maps, reflective journal entries, and peer feedback summaries are all used to evaluate the effectiveness of the program.

Conclusion And Recommendations

Conclusions

The demographic profile of school leaders indicates a well-qualified and experienced leadership cohort with a strong emphasis on professional development.

The demographic profile of teachers shows a high level of educational attainment and engagement in continuous professional development.

Both school leaders and teachers are highly competent in several key areas of digital leadership and competence, but there are areas for improvement.

Practical experience and professional development are critical factors in developing digital competence among school leaders.

The multifaceted nature of digital competence among teachers requires a comprehensive approach to professional development.

Clear policies, visionary leadership, and access to resources are strong factors influencing digital competence.

Recommendations

Develop tailored training programs that address the diverse needs and backgrounds of school leaders, focusing on both seasoned and new leaders.

Provide ongoing professional development opportunities for teachers, emphasizing practical, hands-on experiences and collaboration.

Establish clear and comprehensive digital policies at the school level to support consistent and effective use of digital tools.

Foster a culture of innovation and digital collaboration within schools, involving all stakeholders in the digital transformation process.

Ensure that schools have access to the necessary technological resources, including hardware, software, and reliable internet access.

Encourage continuous reflection and improvement in digital leadership practices, providing opportunities for feedback and mentorship.

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