Empowering School Heads: Transformational Leadership and Digital Strategies In Technology-Driven Era

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Abstract — This study examined the transformational leadership competencies and digital strategies employed by school heads in the Schools Division of Naga City, Cebu during the School Year 2024–2025, with the goal of proposing an enhancement program. Specifically, the research explored the demographic profiles of 14 school heads and 165 teachers, assessing their perceptions regarding digital leadership competencies including equity advocacy, visionary planning, empowerment, system design, and connected learning and the effectiveness of digital strategies in areas such as technology adoption, innovation support, infrastructure, and policy implementation. Findings revealed that school heads perceive themselves to have high digital leadership competency, particularly as system designers and connected learners, while teachers rate their school heads' competencies more moderately, especially in equity and visionary planning. Similarly, school heads reported strong implementation of digital strategies, especially in professional development and innovation support, whereas teachers' perceptions were more reserved, citing gaps in infrastructure readiness and innovation encouragement. Despite a general alignment in perceived leadership competency between groups, a statistically significant difference emerged in perceptions of digital strategy effectiveness, indicating a perceptual gap between strategic leadership and classroom realities. Regression analysis showed no significant relationship between the demographic profiles of respondents and their perceptions, suggesting that effective digital leadership is shaped more by behavior than by personal or professional background. The results underscore the importance of inclusive, collaborative leadership approaches and continuous professional development. Based on these insights, an enhancement program is proposed to align leadership vision with classroom implementation, bridge perception gaps, and strengthen the digital transformation of schools.

Keywords — Transformational Leadership, Digital Strategies, Educational Technology Integration, School Leadership & Teacher Perception

I. Introduction

The integration of technology in schools has increasingly highlighted the critical role of school leaders. Earlier studies focused primarily on staff development and policy, but recent research has shifted toward understanding leadership practices that influence technology use in education. Educational leadership literature identifies key domains—such as vision-setting, professional capacity-building, and organizational support—that are vital for both general and technology-specific leadership. While transformational leadership has been linked to positive outcomes in ICT integration, many studies fall short in empirically verifying these effects or risk conflating leadership behaviors with technology outcomes. This study aimed to explore the

relationship between transformational leadership and digital strategies in enhancing school leadership effectiveness in technologically advanced environments. It contributes valuable insights for policy, professional development, and school management, despite limitations such as regional focus and rapidly evolving technology. Ultimately, it underscores the importance of empowering school leaders through digital and transformational strategies to foster innovation and improve student outcomes.

Statement of Problem

This study investigated the school heads' transformational leadership and digital strategies utilized in Schools Division of Naga City, Cebu during the School Year 2024-2025 with the end view of proposing a Leadership and Digital Innovation Enhancement Program.

Specifically, it sought to answer to the following questions:

1. What is the demographic profile of the respondents in terms of:

1.1 School Heads

1.1 Age;

1.2 Sex;

1.3 Highest Educational Attainment;

1.4 Designation/position;

1.5 Length of Administrative Experience; and

1.6 Number of relevant trainings/seminar attended?

1.2 Teachers

1.2.1 Age;

1.2.2 Sex;

1.2.3 Highest Educational Attainment;

1.2.4 Length of Teaching Experience; and

1.2.5 Number of relevant trainings/seminar attended?

2. As perceived by the respondent groups, what is the level of digital leadership competency of the school heads in terms of:

2.1 equity and citizenship advocate;

2.2 visionary planner;

2.3 empowering leader;

2.4 systems designer; and

2.5 connected learner?

3. As perceived by the respondent groups, what is the level of digital strategies in technology integration and innovation by the school heads in terms of:

3.1 Tech Adoption Rate;

3.2 Professional Development Engagement;

3.3 Innovation Support;

3.4 Infrastructure Readiness; and

3.5 Digital Policy Implementation?

4. Is there a significant relationship between the profile of the respondent groups and their perceived level of digital leadership competency of the school heads?

5. Is there a significant relationship between the profile of the respondent groups and their perceived level of digital strategies in technology integration and innovation by the school heads?

6. Is there a significant relationship between the respondent groups' perceived level of digital leadership competency of the school heads and their perceived level of digital strategies in technology integration and innovation by the school heads?

7. Is there a significant difference between the respondent groups perceived level of digital leadership competency of the school heads?

8. Is there a significant difference between the respondent groups perceived level of digital strategies in technology integration and innovation by the school heads?

9. Based on findings, what Leadership and Digital Innovation Enhancement Program can be proposed?

II. Methodology

The study employed a descriptive-correlational research design to examine quantitative relationships between school heads' leadership characteristics, digital competencies, and workplace challenges. The descriptive component collected data on the demographics, digital

leadership competency ratings, and common workplace issues of elementary and secondary school heads in District 2, Naga City. Ethical approval was obtained from the Schools Division Superintendent to facilitate the distribution of structured questionnaires. Descriptive statistics, such as means and percentages, were used to summarize participant characteristics and competency levels, while Spearman's rank correlation was applied to explore potential associations among variables. The researchers focused exclusively on quantitative methods to maintain methodological consistency with the descriptive-correlational framework, as the study aimed to assess present conditions and identify statistical relationships.

2.1 Procedure

The study systematically examined transformational leadership and digital strategies within District 2 of the City of Naga Division. The researcher secured official approval for data collection through signed letters from both the Graduate School Dean and the Schools Division Superintendent. Upon receiving ethical clearance, the study commenced with a comprehensive literature review to establish its theoretical framework.

Validated questionnaires were personally distributed by the researcher to all 14 school heads using total enumeration and to 165 teachers selected through stratified random sampling from 10 participating schools. Prior to distribution, participants provided informed consent by signing forms outlining the study's purpose, confidentiality assurances, and their voluntary participation rights. Each school received a brief orientation session to ensure proper understanding of the survey instruments.

Completed questionnaires were collected after two weeks and underwent rigorous data cleaning procedures. Descriptive statistics—including frequency counts, percentages, and means—were used to present respondent data, while Pearson's r and multiple regression analysis were applied to examine relationships between leadership practices and technology integration outcomes.

Throughout the research process, strict confidentiality was maintained through the use of numerical codes for respondents and password-protected data storage. The entire study complied with university ethical guidelines and was completed within a three-month period as approved.

2.2 Data Processing

The researchers implemented a quantitative data processing method that began with systematic encoding and cleaning of questionnaire responses using Microsoft Excel. To verify assumptions of normality, Shapiro-Wilk tests were used for smaller subgroups and Kolmogorov-Smirnov tests for larger samples, followed by data transformation procedures as necessary (Field, 2017).

Descriptive analysis included frequency counts, percentages, weighted means, and standard deviations to summarize respondent characteristics and Likert-scale responses. To analyze relationships, Pearson's r and Spearman's rho were used depending on variable types, while multiple linear regression served to predict the impact of leadership competencies on technology integration outcomes (Pallant, 2020).

The reliability of each instrument scale was verified using Cronbach's alpha (α), with all scales demonstrating acceptable reliability ($\alpha \geq 0.70$). Data analysis was conducted using IBM SPSS Statistics version 27, applying a significance level of $p < 0.05$. The analysis followed a structured process: data encoding, normality testing, descriptive statistics, reliability verification, and inferential analysis—ensuring methodological rigor and validity in alignment with the descriptive-correlational research design.

III.   Results and Discussion

This section presents the frequency distribution of school heads' demographic profiles, including their age, sex, highest educational attainment, designation or position, length of administrative experience, and the number of relevant trainings or seminars attended. The findings are detailed in the subsequent tables.

The majority of school heads were aged 35–41 (42.9%), indicating a predominance of mid-career professionals, followed by those aged 49–55 (35.7%). Most were female (78.6%), reflecting common trends in educational leadership. Regarding civil status, a larger group of respondents—likely including both school heads and teachers—were single (55.9%).

In terms of educational attainment, 71.4% held a master's degree, while 28.6% had a Doctorate, suggesting strong academic backgrounds. The most common designation was Teacher In-Charge (35.7%), followed by Head Teachers (42.8%) and Principals (21.4%), indicating that many school heads still combine teaching with administrative roles.

A majority (78.6%) had 10–19 years of teaching experience, reflecting seasoned but not yet retiring professionals. Most school heads (71.4%) had attended national-level training, indicating broad exposure to current policies and technology integration strategies.

These findings suggest that school leadership in the area is largely composed of experienced, academically qualified, mid-career professionals with significant engagement in national-level professional development—favorable conditions for implementing educational technology initiatives.

Table 2 Frequency Distribution on the Demographic Profile of the School Heads

Age	Frequency	Percent
56-62	1	7.1%
49-55	5	35.7%
42-48	2	14.3%
35-41	6	42.9%
Total	**14**	**100.0%**
Sex	**Frequency**	**Percent**
Male	3	21.4%
Female	11	78.6%
Total	**14**	**100.0%**
Civil Status	**Frequency**	**Percent**
Single	104	55.9%
Married	82	44.1%
Total	**186**	**100.0%**
Highest Educational Attainment	**Frequency**	**Percent**
Doctorate Degree	4	28.6%
Master's Degree	10	71.4%
Total	**14**	**100.0%**
Designation/position	**Frequency**	**Percent**
Principal II	2	14.3%
Principal I	1	7.1%
Head Teacher II	3	21.4%
Head Teacher I	3	21.4%
Teacher In-Charge	5	35.7%
Total	**14**	**100.0%**
LENGTH OF TEACHING EXPERIENCE	**Frequency**	**Percent**
20> years	3	21.4%
10-19 years	11	78.6%
Total	**14**	**100.0%**
Number of Relevant Trainings/Seminars Attended	**Frequency**	**Percent**
National	10	71.4%
Regional	4	28.6%
Total	**14**	**100.0%**

This section presents the frequency distribution of the teachers' demographic profile, covering their age, sex, highest educational attainment, length of teaching experience, and the number of relevant trainings or seminars attended. The detailed findings are displayed in the following section.

The majority of teachers were aged 28–34 (47.9%), indicating a young and potentially adaptable workforce, with an estimated average age around 37–39 years. Female teachers (67.3%) significantly outnumbered males, reflecting broader trends in the education sector. In terms of civil status, 55.9% of the teachers were single, which may suggest greater flexibility for professional development.

Most teachers were pursuing graduate studies: 53.3% had earned units toward a master's degree, though only 17.6% had completed it. Doctorate holders accounted for just 4.8%. Teaching

experience was generally low, with 61.8% having less than 10 years of service, further highlighting a relatively new and possibly more tech-receptive faculty.

In terms of professional development, most teachers had attended division-level training (58.8%), with fewer participating in regional (30.9%) and national-level (10.3%) seminars. This limited exposure to high-level training suggests a need for broader access to advanced, policy-aligned professional development to support deeper technology integration in instruction.

Table 3 Frequency Distribution on the Demographic Profile of the Teachers

Age	Frequency	Percent
56-62	4	2.4%
49-55	15	9.1%
42-48	42	25.5%
35-41	16	9.7%
28-34	79	47.9%
<28	9	5.5%
Total	**165**	**100.0%**
Sex	**Frequency**	**Percent**
Male	54	32.7%
Female	111	67.3%
Total	**165**	**100.0%**
Civil Status	**Frequency**	**Percent**
Single	104	55.9%
Married	82	44.1%
Total	**186**	**100.0%**
Highest Educational Attainment	**Frequency**	**Percent**
Doctorate Degree	8	4.8%
Doctorate Units	11	6.7%
Master's Degree	29	17.6%
Master's Units	88	53.3%
College Degree	29	17.6%
Total	**165**	**100.0%**
LENGTH OF TEACHING EXPERIENCE	**Frequency**	**Percent**
20>	18	10.9%
10-19	45	27.3%
<10	102	61.8%
Total	**165**	**100.0%**
Number of Relevant Trainings/Seminars Attended	**Frequency**	**Percent**
National	17	10.3%
Regional	51	30.9%
Division	97	58.8%
Total	**165**	**100.0%**

Table 9 presented that school heads generally demonstrated high digital leadership competencies (grand mean = 3.64), especially in the areas of Connected Learner and Systems Designer. However, lower averages in Empowering Leader (M = 3.13) and Equity and Citizenship Advocate indicated gaps in collaborative leadership and inclusivity. This suggested a tendency toward top-down implementation, potentially limiting sustainable digital transformation.

Strengthening empowerment and equity-oriented practices would have enhanced the overall effectiveness of school leaders in facilitating inclusive, technology-driven change.

Table 9 Summary Results on the level of digital leadership competency of the school heads

Indicators	N	Mean	Std. Deviation	Interpretation
Equity and Citizenship Advocate	14	3.23	0.99	Moderate
Visionary Planner	14	3.23	0.97	Moderate
Empowering Leader	14	3.13	1.17	Moderate
Systems Designer	14	3.63	0.90	High
Connected Learner	14	3.73	0.89	High
Grand Mean	**14**	**3.64**	**1.55**	**High**

Table 15 presented a summary of teachers' perceptions of their school heads' digital leadership competencies across five key domains. The data revealed that all domains were rated at a moderate level, with Systems Designer receiving the highest mean score (M = 3.32, SD = 1.02), indicating relative strength in infrastructure-related digital integration. Conversely, Visionary Planner received the lowest mean (M = 2.86, SD = 1.14), suggesting that school leaders were less effective in articulating and implementing long-term digital strategies. The overall grand mean of 3.03 (SD = 1.06) reinforced the moderate perception of digital leadership competency among school heads from the viewpoint of teachers.

These findings aligned with Xie and Wang's (2023) assertion that transformational leaders must adjust and employ efficient digital strategies to guide successful digital transformation. While the Systems Designer competency showed relatively higher performance, the moderate ratings in Empowering Leader (M = 2.92, SD = 1.06) and Equity and Citizenship Advocate (M = 2.95, SD = 1.09) suggested a gap in fostering inclusive practices and empowering staff to innovate. This gap implied that many school leaders had not yet fully embraced their role as facilitators of change—an essential function of transformational leadership in digital contexts.

Furthermore, the link between teacher empowerment and innovation, as highlighted by Suryo et al. (2023), underscored the importance of strengthening emotional intelligence and leadership strategies that actively involved teachers in decision-making and innovation. Teachers who perceived their leaders as moderately competent in digital leadership may have felt less encouraged or supported to try new approaches, thus limiting innovation in the classroom. Therefore, improving school heads' competencies in empowerment and visionary planning could have catalyzed a more robust culture of innovation and ultimately enhanced student learning experiences and school performance.

Table 15 Summary Results on teachers perceived level of digital leadership competency of the school heads

Indicators	N	Mean	Std. Deviation	Interpretation
Equity and Citizenship Advocate	165	2.95	1.09	Moderate
Visionary Planner	165	2.86	1.14	Moderate
Empowering Leader	165	2.92	1.06	Moderate
Systems Designer	165	3.32	1.02	Moderate
Connected Learner	165	3.12	0.99	Moderate
Grand Mean	165	3.03	1.06	Moderate

Table 21 provided an overall view of the five key dimensions of digital strategy implementation across schools: Tech Adoption Rate, Professional Development Engagement, Innovation Support, Infrastructure Readiness, and Digital Policy Implementation. The highest-rated domain was Professional Development Engagement (Mean = 3.81, SD = 0.84), followed by Innovation Support (Mean = 3.70, SD = 0.79), both rated as High. These results indicated that school heads prioritized upskilling and fostered innovation among staff as part of their digital transformation strategies. This reflected a commitment to long-term capacity-building and adaptability to technological advancements—elements essential to sustaining ICT integration.

The Tech Adoption Rate (Mean = 3.54, SD = 0.91) and Digital Policy Implementation (Mean = 3.47, SD = 0.97) also fell under the High category, showing that schools were relatively effective in adopting new technologies and aligning practices with institutional and national guidelines. However, Infrastructure Readiness (Mean = 3.26, SD = 0.94) stood out as the only category rated Moderate, which highlighted an enduring challenge in the foundational aspect of ICT integration—hardware, connectivity, and technical support. Without proper infrastructure, even well-developed professional training and innovation frameworks could not be fully leveraged.

These summary results reinforced Morioka's (2016) case study, which underscored the infrastructural divide in ICT education between rural and suburban schools in the Philippines. While school heads showed commendable progress in policy, professional development, and innovation, infrastructure remained a bottleneck—particularly in less urbanized areas. This aligned with Kubota et al. (2018)'s call for more equitable resource distribution to ensure that ICT adoption did not just succeed in isolated pockets but became a nationwide norm. The grand mean of 3.56 (SD = 0.89), interpreted as High, reflected overall favorable progress but signaled a need for targeted interventions in digital infrastructure to bridge the accessibility gap and move toward a fully inclusive, technology-enabled education system.

Table 21 Summary Results on the level of digital strategies in technology integration and innovation by the school heads

Indicators	N	Mean	Std. Deviation	Interpretation
Tech Adoption Rate	165	3.54	0.91	High
Professional Development Engagement	165	3.81	0.84	High
Innovation Support	165	3.70	0.79	High
Infrastructure Readiness	165	3.26	0.94	Moderate
Digital Policy Implementation	165	3.47	0.97	High
Grand Mean	165	3.56	0.89	High

The summary of teachers' perceptions in Table 27 provided a comprehensive overview of the then-current state of digital strategies across five key domains. Professional Development Engagement received the highest mean score of 3.13 (SD = 0.89), followed by Digital Policy Implementation at 3.00 (SD = 0.93). These were the only domains approaching the higher end of the Moderate range, indicating some level of engagement and compliance, though still lacking in excellence. The lowest-scoring domain was Innovation Support (Mean = 2.69, SD = 0.82), which revealed widespread concern about the lack of support structures for teacher experimentation and creative digital teaching.

Tech Adoption Rate and Infrastructure Readiness were also rated moderately at 2.96 and 2.87, respectively, which pointed to ongoing challenges in consistent implementation and resourcing. The overall Grand Mean of 2.93 (SD = 0.90) clearly placed the teachers' perspective in the Moderate zone, reflecting a cautious yet honest assessment of existing practices. These results differed from the more optimistic evaluations given by school heads in earlier tables, which suggested a perception gap that may have been rooted in communication or leadership engagement.

This gap underscored the need for transformational leadership, where school leaders actively modeled, supported, and communicated digital strategy execution. As emphasized by Orunbon et al. (2023) and Hamzah et al. (2021), digital leadership during crises greatly influenced teacher engagement and effectiveness. The moderate ratings from teachers indicated that while digital strategies existed on paper, they had not yet fully translated into impactful, on-the-ground experiences. Moving forward, it was essential for leaders to close the perception gap by fostering transparency, strengthening infrastructure, and championing innovation.

Table 27 Summary Results on teachers perceived level of digital strategies in technology integration and innovation by the school heads

Indicators	N	Mean	Std. Deviation	Interpretation
Tech Adoption Rate	165	2.96	1.06	Moderate
Professional Development Engagement	165	3.13	0.89	Moderate
Innovation Support	165	2.69	0.82	Moderate
Infrastructure Readiness	165	2.87	0.82	Moderate
Digital Policy Implementation	165	3.00	0.93	Moderate
Grand Mean	165	2.93	0.90	Moderate

This section presents the test of relationship between the profile of the school heads and their perceived level of digital leadership competency. The results are shown below.

Table 28 summarized a regression analysis examining how school heads' profile variables related to their perceived digital leadership competency. While the model showed a moderate correlation (R = 0.645), only 41.5% of the variance was explained (R² = 0.415), and the Adjusted R² dropped to just 0.050, indicating weak predictive power when accounting for model complexity. This large gap suggested potential overfitting and limited generalizability. The findings implied that demographic factors alone were insufficient to explain digital leadership competency, highlighting the likely importance of other factors such as school culture, infrastructure, or training.

Table 28 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.645ᵃ	.415	.050	.68650

Table 29 presented the ANOVA results for the regression model predicting school heads' digital leadership competency based on their profile variables. The F-value of 1.137 and p-value of 0.414 indicated that the model was not statistically significant, meaning the profile variables did not reliably predict digital leadership. Although Table 28 showed a moderate correlation, the high residual variance and low explained variance underscored the model's weakness. The results emphasized that demographic factors alone were inadequate for understanding digital leadership, highlighting the importance of including behavioral, institutional, or training-related variables in future models.

Table 29 ANOVA Analysis

Model		Sum of Squares	df	Mean Square	F	p-value	Decision
1	Regression	2.679	5	.536	1.137	.414	Not Significant
	Residual	3.770	8	.471			
	Total	6.449	13				

This section summarizes the comparison between school heads and teachers regarding their perceived level of digital strategies in technology integration and innovation, highlighting differences in their views.

Table 44 showed that school heads rated their digital strategies in technology integration and innovation higher (mean = 3.56) than teachers did (mean = 2.93), indicating a notable perception gap between the two groups. The mean difference of 0.627 suggests school heads view their strategies more favorably. While both groups showed moderate variation in responses, teachers had slightly more varied opinions. The smaller standard error among teachers also indicates more consistent perceptions within their group. Overall, the results highlight differences between leadership and teaching staff on the effectiveness of digital strategies in schools.

Table 44 Group Statistics

Variable	Groupstrat	N	Mean	Std. Deviation	Std. Error Mean
level of digital strategies in technology integration and innovation by the school heads	1.00	14	3.5571	.59443	.159
	2.00	165	2.9302	.62572	.049

Table 45 reveals a statistically significant difference in how school heads and teachers perceive digital strategies for technology integration and innovation. The results of Levene's Test show that the variance between the two groups is equal (p = 0.974), validating the use of the standard t-test. The t-test results indicate that school heads view digital strategy implementation more favorably than teachers do, with a mean difference of 0.627 and a highly significant p-value of 0.000. This difference remains robust even when the assumption of equal variances is relaxed.

These findings suggest a perceptual gap between school leaders and teachers, with leaders generally more optimistic about the effectiveness of digital strategies. This aligns with existing research highlighting that teachers' perceptions are shaped by their hands-on classroom experiences, whereas school heads tend to have a broader strategic perspective. Moreover, recent literature emphasizes that the quality—not just the frequency—of technology use should be considered when evaluating digital integration. The ICAP model, which focuses on levels of cognitive engagement, is recommended as a valuable framework for future research to better understand the link between digital leadership, instructional practices, and meaningful technology use in schools.

Table 45 T-test for Two Independent Samples on test of difference between the respondent groups perceived level of digital strategies in technology integration and innovation by the school heads

Variable		Levene's Test for Equality of Variances		t-test for Equality of Means						Decision
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference		
level of digital strategies in technology integration and innovation by the school heads	Equal variances assumed	.001	.974	3.612	177	.000	.627	.174		Significant
	Equal variances not assumed			3.773	15.548	.002	.627	.166		

Discussion

Demographic Profile of the Respondents

The demographic data illustrated key insights into the educational leadership and teaching workforce involved in digital strategy integration.

For school heads, the majority belonged to the mid-career age range (35-55 years), indicating their capability to guide technological transformations. Their extensive experience enabled them to bridge traditional pedagogy with modern technological advancements. A significant presence of female leaders reflected broader educational trends, where women increasingly assumed leadership roles, potentially fostering a community-centered approach to technology integration. Many school heads held advanced degrees, further demonstrating their capacity to lead educational reforms. Their involvement in national-level training reinforced their awareness of current trends, positioning them to influence technology adoption in schools. However, with a limited sample size of 14 school heads, the findings carried constraints in generalizability.

The teacher demographic profile revealed a predominantly female, younger workforce, which suggested an advantage in adapting to technological advancements in the classroom. Many teachers possessed less than 10 years of experience, making them more receptive to adopting and experimenting with technology. Research had supported the idea that younger educators were more comfortable with digital tools, enhancing their role in digital integration. However, limited exposure to national-level training posed challenges, restricting teachers' access to systemic approaches for technology adoption. Despite many teachers holding graduate-level units or degrees, gaps remained in ensuring comprehensive digital competencies across all experience

levels. This highlighted the need for strategic professional development programs catering to teachers at various career stages while aligning with national digital strategies.

Both school heads and teachers played essential roles in digital transformation within their schools. While experienced leadership offered stability, younger educators contributed technological agility. To optimize this dynamic, professional development initiatives needed strategic alignment with national education policies. Increased access to national-level seminars and workshops could equip teachers with essential digital skills, while school heads could cultivate a supportive environment where technology integration became a seamless aspect of teaching. Ultimately, a collaborative approach between leadership and educators, supported by targeted training, remained crucial in ensuring successful digital education implementation.

<u>Level of digital leadership competency of the school heads</u>

The results revealed a high self-assessed digital leadership competency among school heads, particularly in *Systems Designer* (M = 3.63) and *Connected Learner* (M = 3.73), suggesting strong abilities in managing digital infrastructure and continuous learning. However, moderate scores in *Equity and Citizenship Advocate* and *Visionary Planner* (both M = 3.23) highlight areas needing further development, especially in promoting digital equity and strategic planning. The overall grand mean of 3.64 reflects a generally high but not comprehensive level of digital leadership.

In contrast, teachers rated their school heads' digital leadership as only moderate, with a grand mean of 3.03. While they acknowledged strengths in *Systems Designer* (M = 3.32) and *Connected Learner* (M = 3.12), they rated *Visionary Planner* (M = 2.86) and *Equity and Citizenship Advocate* (M = 2.95) lower. This perception gap between school heads' self-assessments and teachers' views points to a disconnect that may affect collaborative implementation of digital initiatives.

Overall, the findings suggest a need for greater alignment, communication, and shared leadership, particularly in setting a clear digital vision and fostering inclusive practices to support effective, school-wide technology integration.

<u>Level of digital strategies in technology integration and innovation by the school heads</u>

The summary highlights a contrast between school heads and teachers' perceptions of digital strategy implementation in schools. School heads reported a high level of engagement in digital leadership, with strong scores in *Professional Development Engagement* (M = 3.81), *Innovation Support* (M = 3.70), *Tech Adoption Rate* (M = 3.54), and *Digital Policy Implementation* (M = 3.47). However, *Infrastructure Readiness* (M = 3.26) was only moderate, suggesting gaps in physical or technological resources. The overall grand mean of 3.56 reflects robust strategic efforts from the leadership perspective.

In contrast, teachers rated all domains moderately, with a lower grand mean of 2.93. While *Professional Development Engagement* (M = 3.13) was viewed most favorably, *Innovation Support* received the lowest mean (2.69), pointing to perceived shortcomings in fostering creativity and experimentation. Moderate ratings for *Infrastructure Readiness* (M = 2.87) and *Digital Policy Implementation* (M = 3.00) also suggest concerns about the practical support for digital learning.

This perception gap underscores the need for greater alignment between leadership intentions and classroom realities. To address this, school heads should collaborate more closely with teachers, tailor professional development to actual needs, and prioritize investment in infrastructure and inclusive innovation support.

<u>Tests of Relationships and Differences of the Variables</u>

The study found that while there is a moderate correlation between school heads' profiles and their perceived digital leadership competency, the relationship is not statistically significant. Profile variables such as age, education, and experience were shown to have weak predictive power, suggesting that other factors like leadership behavior, school culture, and professional development are more influential. Similarly, teachers' own demographic profiles did not significantly affect their perception of school heads' digital leadership, reinforcing the importance of leadership actions over personal characteristics.

Despite aligned perceptions between school heads and teachers on leadership competency (with no significant difference), a clear gap exists in how each group views the effectiveness of digital strategies. School heads rate their strategy implementation more positively than teachers, pointing to a disconnect between planning and classroom execution. This highlights the need for better communication, collaborative planning, and targeted support to ensure digital strategies translate into practical and impactful classroom experiences. Overall, the findings emphasize that successful digital leadership depends more on visible, strategic behaviors and less on background characteristics.

IV.   Conclusion

The conclusions from the demographic profiles suggest that while both school heads and teachers are key to digital transformation in schools, their viewpoints differ. School heads, being more experienced and educated, tend to view their digital leadership and strategies more favorably. In contrast, teachers—though supportive of technology—show only moderate confidence in these strategies, likely due to their direct classroom experiences. This gap underscores the need for stronger collaboration and communication. Aligning leadership vision with teachers' practical needs and providing inclusive professional development can help bridge this divide, leading to more effective and sustainable technology integration.

V.   Recommendations

Recommendations Based on Research Conclusions:

- **Promote open communication:** Facilitate regular dialogue between school heads and teachers to align digital leadership goals with classroom needs.

- **Align vision with practice:** Ensure school heads' technology integration plans reflect teachers' daily challenges through ongoing consultations.

- **Encourage teacher involvement:** Involve teachers in decision-making for digital strategies to increase relevance and buy-in.

- **Enhance professional development:** Design leadership and classroom-focused training programs that are accessible and tailored to varying teacher experience levels.

- **Support practical classroom needs:** Provide resources, tools, and training directly applicable to daily teaching, such as workshops on digital tools.

- **Improve infrastructure:** Invest in reliable technological and physical infrastructure to support digital initiatives across all schools.

- **Strengthen leadership competencies:** Encourage school heads to develop skills in equity, citizenship, and visionary planning to lead digital transformation effectively.

- **Evaluate digital initiatives:** Conduct regular assessments of digital strategies to measure their impact and guide necessary adjustments.

- **Foster innovation culture:** Create an environment that supports experimentation with digital tools, allowing teachers to explore and innovate.

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