

School Heads' Digital Leadership in Relation to Its Culture, Engagement, and Motivation of Teachers Across Age Groups in the Schools Division of Laguna: A Basis for Training and Development Plan

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Abstract—This research aimed to determine the relationship between school heads' digital leadership and teachers' digital culture, engagement, and motivation across generational age groups of school heads in the Schools Division of Laguna. It included the level of school heads' digital leadership and the level of teachers' digital culture, engagement, and motivation, as well as the significant relationship between both overall and generation-based digital leadership of school heads and teachers' digital culture, engagement, and motivation. In addition to its impact on teachers' digital engagement and motivation, this study also looked at the role of school heads' digital leadership in influencing the digital culture of educators. Finally, a training and development plan was developed based on the findings of the study. This study utilized the concurrent mixed-method triangulation design. Thirty junior and senior high school teachers led by Millennial and Generation X school heads were involved. The teacher-respondents were based on their school heads' generational age group, including 150 teachers for the quantitative data collection and six respondents for the qualitative data collection. The findings revealed that the level of school heads' digital leadership, teachers' digital culture, engagement, and motivation in intrinsic motivation was extremely high across all areas. Meanwhile, the teachers' extrinsic motivation was at a very high level. It was also found that the relationship between Millennial and Generation X school heads' digital leadership and teachers' digital culture, engagement, and motivation generally did not vary. However, the technological skills of teachers did not show significant correlations with Generation X school heads' digital leadership. Meanwhile, the study found significant relationships between the overall school head's digital leadership and teachers' digital culture, engagement, and motivation. Accordingly, the null hypothesis was retained in the variation of the relationship between Millennial and Generation X school heads' digital leadership and teachers' digital culture, engagement, and motivation. While in the relationships between the overall school head's digital leadership and teachers' digital culture, engagement, and motivation, the null hypotheses were rejected. In addition, three themes contributed to the role of school heads' digital leadership in shaping the digital culture of teachers. In comparison, two themes showed the influence of school heads' digital leadership on teachers' digital engagement and motivation. Based on the findings, school heads, particularly from Generation X, may pursue advanced training in new technologies and troubleshooting, while teachers may participate in more hands-on technical training. Future research may also examine factors like school size, available resources, and leadership experience to better understand digital leadership effectiveness across contexts.

Keywords— Digital Leadership, Generational Age Group, Digital Culture, Digital Engagement, Motivation.

I. INTRODUCTION

Education has undergone significant developments in recent years due to digital advancements, changes in educational approaches, and a growing emphasis on diversity and equality. Digital transformation plays a crucial role in advancing school practices in the modern era. It represents a coordinated set of changes that lead to new educational models and operational frameworks within institutions (García-Peñalvo, 2021).

Digital transformation has emphasized the importance of school leaders in developing strong digital leadership skills to successfully adapt to the evolving educational environment. Digital leadership involves the integration of digital tools into leadership practices to facilitate continuous development in education (Ridho et al., 2023). This means that capable digital leaders not only adopt modern technologies but also foster relationships and a vision for the positive changes that can be brought about by the digital environment (Ridho et al., 2023; Yusof et al., 2019).

Digitalization has gradually transformed the educational system in the Philippines (Tanucan et al., 2022). Consequently, the need for school heads to develop strong digital leadership skills has grown in recent years. As a modern management approach, digital leadership drives and supports digital changes in organizations, making their operations more flexible, efficient, and effective (Waldron, 2021). Moreover, effective digital leadership significantly impacts how teachers feel about and utilize technology, fostering a positive environment for innovation and collaboration (Sunu, 2022).

Digital leadership is a strategic and visionary management approach that leverages digital technologies to enhance organizational processes, improve educational outcomes, and foster a culture of continuous innovation. Digital leaders motivate and guide their teachers to adopt digital tools, ensuring that technology integration aligns with the goals and values of the educational institutions.

By promoting a positive digital culture, encouraging active digital engagement, and fostering motivation, digital leadership of school heads can create an environment where

technology is seamlessly integrated into educational practices, leading to improved outcomes for teachers, which will ultimately benefit the students. However, the impact of age on leadership styles can also be observed in the context of school performance. The ability of school heads to engage with staff and promote a collaborative environment can be influenced by their age, as older leaders may prioritize relationship-building based on their experiences, while younger leaders might focus on innovative practices that leverage technology (Chen, 2022).

Digital culture refers to the collective practices, values, and norms that teachers adopt and develop as they integrate digital technologies into their teaching and professional activities. It includes attitudes toward digital tools and innovation, technological skills, collaboration through technology, digital pedagogy, and the overall school culture. Digital engagement is the active participation and involvement of teachers in using digital tools and technologies, encompassing the utilization of digital tools, participation in digital professional development, self-efficacy in using digital tools, and communication effectiveness. While motivation refers to the drive and enthusiasm teachers exhibit towards their professional roles, it is influenced by the support and guidance provided through digital leadership.

The researcher conducted a study on the correlation between school heads' digital leadership and the digital culture, engagement, and motivation of teachers in the Schools Division of Laguna, taking into account the generational age groups of school heads. The purpose of this study was to ascertain the connection between school heads' digital leadership and teachers' digital culture, engagement, and motivation to design focused training courses. It investigated how school heads across various generations could effectively lead in a digital age, addressing the diverse needs of their teachers and creating a supportive environment for integrating technology that enhances teacher engagement and fosters motivation.

Ultimately, this study's findings led to the creation of effective professional development programs that address the needs of different generational age demographics. Moreover, identifying the crucial factors of digital leadership that enhance digital culture, engagement, and motivation of teachers can help educational institutions implement strategies to promote a digital transformation in education.

1.1 Statement of the Problem

Specifically, the study aimed to answer the following questions:

1. *What is the generational age group of school heads in the Schools Division of Laguna?*
2. *What is the level of digital leadership among School Heads in the Schools Division of Laguna in terms of:*
 - 2.1. *digital competence*
 - 2.2. *digital practices*
 - 2.3. *digital goals*
 - 2.4. *encouragement of innovation and creativity*

- 2.5. *support for digital professional development, and*
- 2.6. *leadership style?*
3. *What is the level of digital culture of teachers in the Schools Division of Laguna in terms of:*
 - 3.1. *attitude toward digital tools and innovation*
 - 3.2. *technological skills*
 - 3.3. *collaboration through technology*
 - 3.4. *digital pedagogy, and*
 - 3.5. *school culture?*
4. *What is the level of digital engagement of teachers in the schools Division of Laguna in terms of:*
 - 4.1. *utilization of digital tools*
 - 4.2. *participation in digital professional development*
 - 4.3. *self-efficacy in using digital tools and*
 - 4.4. *communication effectiveness?*
5. *What is the level of motivation of teachers in the Schools Division of Laguna in terms of:*
 - 5.1. *intrinsic motivation and*
 - 5.2. *extrinsic motivation?*
6. *To what extent does the relationship between the school head's digital leadership and teachers' digital culture, engagement, and motivation vary based on the generational age group of school heads such as:*
 - 6.1. *Millennial school heads and*
 - 6.2. *Generation X school heads?*

II. METHODOLOGY

This study utilized a concurrent mixed-methods triangulation design to determine the relationship between variables comprehensively (Creswell et al., 2018). In the concurrent triangulation approach, qualitative and quantitative data are gathered at the same time. The quantitative data of this study were gathered using a survey design that provides a quantitative or numeric description of a population's perceptions, which were analyzed using a purposely selected sample of that population.

On the other hand, the study's qualitative data were gathered through an interview in which the researcher identified the essence of human experiences about a phenomenon as described by the participants. The respondents who participated in the interview were selected according to specific criteria, such as respondents' designation, and the generational age group of their school head for follow-up and in-depth scrutinizing of the responses made in the quantitative phase.

III. RESULTS AND DISCUSSION

This chapter presents data obtained from the surveys and interviews conducted in the study. The data were summarized, analyzed, and interpreted to determine the relationship between school heads' digital leadership across various generational age groups and the digital culture, engagement,

and motivation of teachers within the Schools Division of Laguna.

Generational Age Group of School Heads in the Schools Division of Laguna

The generational age group of school heads was determined before the qualitative and quantitative data collection. It was used to identify participating schools and teacher respondents and to determine the variation of school heads' digital leadership for each generational age group in relation to teachers' digital culture, engagement, and motivation.

Figure 3 shows the generational age group of school heads in the Schools Division of Laguna and presents a corresponding percentage for each age group.

In public high schools within the Schools Division of Laguna, Generation X school heads outnumber Millennial school heads. For this study, 15 (50%) Millennial and 15 (50%) Generation X school heads were identified as the basis for selecting respondents. An equal distribution of male and female school heads within each generational group was deliberately ensured. This balanced representation provided a strong foundation for selecting teacher-respondents. This allowed the study to accurately reflect the relationship between school heads' digital leadership and teachers' digital culture, engagement, and motivation.

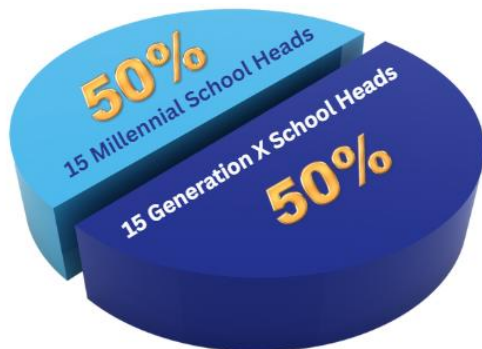


Figure 1: Generational Age Group of School Heads in the Schools Division of Laguna

Age is an essential factor in an individual's leadership style. It reflects a person's life experiences (Sohail & Chen, 2022), which are critical in the context of digital leadership as they can affect school heads' behaviors and willingness to engage with new technologies. Generational differences are a real diversity issue (Hanafi et al., 2020).

Level of School Heads' Digital Leadership as Perceived by the Teachers

The level of school heads' digital leadership as perceived by teachers in terms of digital competence, digital practices, digital goals, encouragement of innovation and creativity, support for digital professional development, and leadership style was determined using a survey. The findings were then presented using tables, analyzed, and interpreted to analyze school heads' digital leadership comprehensively.

Table 1 shows the level of school heads' digital leadership as perceived by the teachers in terms of digital competence. It also presents the statements, mean scores, standard deviations, and remarks.

The school heads were highly effective in digital communication, with teachers strongly agreeing (M = 6.52) that school heads effectively use tools like email and video conferencing to engage with staff, students, and parents. Meanwhile, with a slightly lower mean score (M = 6.15), interpreted as agreed among the teachers, the school heads were still perceived to effectively troubleshoot and provide essential technical support for digital tools and devices.

TABLE 1: Level of School Heads' Digital Leadership as Perceived by the Teachers in Terms of Digital Competence

The School Head ...	M	SD	Remarks
... is proficient in using educational technology tools and platforms.	6.50	0.75	Strongly Agree
... effectively uses digital communication tools (e.g., email, video conferencing) to interact with staff, students, and parents.	6.52	0.73	Strongly Agree
... is skilled in managing and analyzing digital data to inform decision-making.	6.47	0.75	Strongly Agree
... can create digital content (e.g., presentations, videos, documents) for various purposes.	6.50	0.83	Strongly Agree
... can effectively troubleshoot and provide basic technical support for digital tools and devices.	6.15	0.98	Agree
Weighted Mean		6.43	
SD		0.81	
Verbal Interpretation			Extremely High

The weighted mean score of 6.43 with a standard deviation of 0.81 suggested an extremely high level of digital leadership among school heads in terms of digital competence.

Overall, the school heads were proficient in using educational technology and platforms and were able to effectively use digital communication tools to interact with staff, students, and parents. Also, they were skilled in managing and analyzing digital data to inform decision-making, could create digital content for various purposes, and effectively troubleshooted and provided basic technical support for digital tools and devices.

The results showing school heads' proficiency in using digital communication tools and providing technical assistance were supported by Perin and Freitas (2020), who noted that digital competence is encompassed by both technical skills and cognitive resources necessary for effective application in the educational context. Additionally, the strong agreement of teachers on the digital leadership capabilities of school heads reflected the notion that school leaders must possess digital competence to organize and lead technology implementation effectively (Reis-Andersson, 2023).

The level of school heads' digital leadership in terms of digital practices is shown in Table 2. It also includes the statements, along with the mean scores, standard deviation, and corresponding remarks.

Teachers strongly agreed (M = 6.55) that school heads actively encouraged the use of digital tools in teaching and learning. While the mean score (M = 6.25) for the regular monitoring and evaluation of the use of digital tools was

slightly lower, it still signified a strong agreement among teachers.

With regards to the digital leadership of school heads in terms of digital practices, it obtained a weighted mean score of 6.38 and a standard deviation of 0.80, which indicated an extremely high level of school heads' digital leadership in terms of digital practices.

TABLE 2. Level of School Heads' Digital Leadership as Perceived by the Teachers in Terms of Digital Practices

The School Head ...	M	SD	Remarks
... regularly uses digital tools for administrative tasks and decision-making.	6.35	0.84	Strongly Agree
... actively encourages the use of digital tools and resources in teaching and learning.	6.55	0.66	Strongly Agree
... promotes and participates in digital collaboration with staff, students, and the wider community.	6.45	0.77	Strongly Agree
... effectively implements and enforces digital policies and guidelines within the school.	6.30	0.81	Strongly Agree
... regularly monitors and evaluates the use of digital tools and resources in the school.	6.25	0.90	Strongly Agree
Weighted Mean		6.38	
SD		0.80	
Verbal Interpretation		Extremely High	

Table 3 shows the level of school heads' digital leadership in terms of digital goals as perceived by teachers. It also indicates the statements, the mean scores, standard deviation, and corresponding remarks.

TABLE 3. Level of School Heads' Digital Leadership as Perceived by the Teachers in Terms of Digital Goals

The School Head ...	M	SD	Remarks
... aims to improve digital literacy among students and staff.	6.52	0.75	Strongly Agree
... goals to integrate technology effectively into the curriculum.	6.43	0.81	Strongly Agree
... aims to promote a culture of digital innovation within the school.	6.46	0.83	Strongly Agree
... sets goals to ensure all students have equitable access to digital tools and resources.	6.38	0.76	Strongly Agree
... aims to enhance the school's digital infrastructure (e.g., internet access, hardware, software).	6.42	0.82	Strongly Agree
Weighted Mean		6.44	
SD		0.79	
Verbal Interpretation		Extremely High	

The strong agreement among teachers (M = 6.52) reflected that the school heads were committed to enhance digital literacy among both students and staff. Additionally, the mean score (M = 6.38) for setting goals to ensure that all students have equitable access to digital tools and resources still fell within the strong agreement range even though it was slightly lower.

Furthermore, the weighted mean score of M = 6.44 with a standard deviation of 0.79 suggested an extremely high level of digital leadership among school heads with regards to digital goals.

Collectively, the school heads aimed to improve digital literacy among students and school staff. Technology was integrated effectively by the school heads into the curriculum, and they promoted a culture of digital innovation within the school. Likewise, they were able to set goals ensuring that all

students have equitable access to digital tools and resources and aimed to enhance the school's digital infrastructure.

Table 4 illustrates teachers' perceptions of school heads' digital leadership regarding innovation and creativity encouragement. It also includes statements, mean scores, standard deviations, and corresponding remarks. School heads supported and promoted innovative teaching methods that integrate digital tools, as shown by the strong agreement of teachers (M = 6.55). Although the mean score (M = 6.27) for recognizing and rewarding digital creativity and innovation among staff and students was slightly lower, it still reflected strong agreement as perceived by teachers.

Additionally, the school heads demonstrated an extremely high level of digital leadership in terms of encouraging innovation and creativity, as the teachers' perception indicated a weighted mean score of 6.41 and a standard deviation of 0.80.

TABLE 4. Level of School Heads' Digital Leadership as Perceived by the Teachers in Terms of Encouragement of Innovation and Creativity

The School Head ...	M	SD	Remarks
... encourages teachers and students to use technology creatively in their projects and assignments.	6.51	0.79	Strongly Agree
... supports and promotes innovative teaching methods that incorporate digital tools.	6.52	0.66	Strongly Agree
... provides adequate resources and opportunities for digital innovation in school.	6.38	0.82	Strongly Agree
... recognizes and rewards digital creativity and innovation among staff and students.	6.27	0.88	Strongly Agree
... encourages experimentation with new digital tools and technologies to enhance learning and teaching.	6.36	0.84	Strongly Agree
Weighted Mean		6.41	
SD		0.80	
Verbal Interpretation		Extremely High	

Overall, the school heads encouraged teachers as well as students to use technology creatively in their projects and assignments. They also supported and promoted innovative teaching methods that incorporate digital tools and provided adequate resources and opportunities for digital innovation in school. Also, the school heads recognized and rewarded digital creativity and innovation among staff and students and encouraged experimentation with new digital tools and technologies to enhance learning and teaching.

Table 5 indicates the level of school heads' digital leadership in terms of support for digital professional development as perceived by teachers. The statements, average scores, standard deviation, and related comments are also included in the display. The strong agreement among teachers (M = 6.43) showed that school heads supported continuous professional development in digital skills for all staff members. Although slightly lower, the mean score (M = 6.20) for recognizing and rewarding improvements in digital skills among staff remained within the substantial agreement range.

Moreover, the weighted mean score of 6.35 with a standard deviation of 0.88 denoted an extremely high level of digital leadership among school heads in terms of support for digital professional development. Generally, the school heads

actively encouraged staff to participate in digital training and workshops and provided sufficient opportunities for digital learning and skill development. They also supported continuous professional development regarding digital skills for all school staff members, invested in digital resources and tools to facilitate professional growth, and recognized and rewarded improvements in digital skills among staff.

TABLE 5. Level of School Heads' Digital Leadership as Perceived by the Teachers in Terms of Support for Digital Professional Development

The School Head ...	M	SD	Remarks
...actively encourages staff to participate in digital training and workshops.	6.41	0.88	Strongly Agree
...provides ample opportunities for staff to engage in digital learning and skill development.	6.37	0.87	Strongly Agree
... supports continuous professional development in digital skills for all staff members.	6.43	0.74	Strongly Agree
...invests in digital resources and tools to facilitate professional development.	6.31	0.86	Strongly Agree
... recognizes and rewards improvements in digital skills among staff.	6.20	1.03	Strongly Agree
Weighted Mean		6.35	
SD		0.88	
Verbal Interpretation			Extremely High

Table 6 illustrates the perceptions of teachers regarding the level of school heads' digital leadership in terms of leadership style. It also includes the statements, along with the mean scores, standard deviation, and corresponding remarks.

TABLE 6. Level of School Heads' Digital Leadership as Perceived by the Teachers in Terms of Leadership Style

The School Head ...	M	SD	Remarks
... demonstrates a clear and inspiring vision for the integration of digital technologies in the school.	6.37	0.85	Strongly Agree
... fosters a collaborative environment where staff and students are encouraged to share ideas and work together on digital initiatives.	6.35	0.84	Strongly Agree
... provides support and resources to staff for the effective use of digital tools and technologies.	6.39	0.82	Strongly Agree
... encourages and leads innovative practices in the use of digital technologies for teaching and learning.	6.39	0.76	Strongly Agree
... promotes ethical use of digital technologies and ensures digital safety within the school.	6.43	0.77	Strongly Agree
Weighted Mean		6.39	
SD		0.81	
Verbal Interpretation			Extremely High

As indicated in the findings, the school heads were highly dedicated to promoting the ethical use of digital technologies and ensuring digital safety in schools (M = 6.43). In addition, they fostered a collaborative environment wherein school staff and students actively share ideas and work together on digital initiatives (M = 6.35). Although the latter received a slightly lower mean, both remained within the strong agreement range, as perceived by teachers.

In addition, the perception of teachers indicated that the school heads obtained an extremely high level of digital leadership in terms of leadership style, getting an overall weighted mean score of 6.39 and a standard deviation of 0.81.

In general, the school heads showed a clear and inspiring vision for the integration of digital technologies in their respective schools while actively fostering a collaborative environment where staff and students were encouraged to share ideas and collaborate on digital initiatives. Also, they provided support and resources among the staff for the effective use of digital tools and technologies. Moreover, they also encouraged and lead innovative practices regarding the use of digital technologies for teaching and learning, as well as promoted the ethical use of digital technologies and prioritized digital safety within the school.

Level of Digital Culture of Teachers in the Schools Division of Laguna

The level of teachers' digital culture, encompassing their attitude toward digital tools and innovation, technological skills, collaboration through technology, digital pedagogy, and overall school culture, was determined through a survey with teachers as respondents. The findings were presented in tables, then analyzed and interpreted to provide a comprehensive analysis of teachers' digital culture.

Table 7 shows the level of teachers' digital culture which includes their attitude toward digital tools and innovation with teachers as respondents. It also presents the statements, mean scores, standard deviations, and remarks.

TABLE 7. Level of Teachers' Digital Culture in the Schools Division of Laguna in Terms of Their Attitude Toward Digital Tools and Innovation

As a teacher...	M	SD	Remarks
...I am open to integrating digital tools into my work tasks.	6.69	0.52	Strongly Agree
...I believe that digital innovation positively impacts my work performance.	6.68	0.53	Strongly Agree
...I feel comfortable using digital tools and technologies in my daily work tasks.	6.49	0.65	Strongly Agree
...I am willing to learn and adopt new digital tools and technologies for my work.	6.72	0.57	Strongly Agree
...I support the integration of digital innovation in my work.	6.72	0.51	Strongly Agree
Weighted Mean		6.66	
SD		0.56	
Verbal Interpretation			Extremely High

The teachers strongly agreed (M = 6.72) that they are willing to learn and adopt new digital tools and technologies and support the integration of digital innovation in their work. While the mean score (M = 6.49) for feeling comfortable using digital tools and technologies in their daily work tasks was slightly lower, it still signified a strong agreement among teachers.

Also, the weighted mean score of 6.66 with a standard deviation of 0.56 indicated an extremely high level of teachers' digital culture in terms of their attitude toward digital tools and innovation.

Generally, teachers were open to integrating digital tools into their work tasks. They also believed that digital innovation positively impacts work performance. Furthermore, teachers felt comfortable in using digital tools and technologies in daily tasks, and they were willing to learn and adopt new digital tools and technologies. Lastly, they supported the integration of digital innovation in their work.

Table 8 presents the perceptions of teachers regarding their level of digital culture in terms of technological skills. Also, it includes the statements, along with the mean scores, standard deviation, and corresponding remarks.

TABLE 8. Level of Teachers' Digital Culture in the Schools Division of Laguna in Terms of Their Technological Skills

As a teacher...	M	SD	Remarks
...I am proficient in using software and applications necessary for my work tasks.	6.09	0.80	Agree
...I can troubleshoot and resolve common technical issues that arise in my work.	5.81	0.97	Agree
...I effectively use digital tools for ancillary tasks such as grading, attendance, and communication.	6.52	0.63	Strongly Agree
...I integrate technology seamlessly into my daily work routines to enhance productivity.	6.45	0.66	Strongly Agree
...I actively seek opportunities to improve my technological skills and stay updated with new tools and trends relevant to my work.	6.42	0.66	Strongly Agree
Weighted Mean		6.26	
SD		0.75	
Verbal Interpretation			Extremely High

As evidenced by the strong agreement of teachers (M = 6.52), they demonstrated high effectiveness in utilizing digital tools for ancillary tasks such as grading, attendance, and communication. Additionally, although slightly lower, the mean score (M = 5.81) for troubleshooting and resolving common technical issues that arise in their work remained within the agreement range.

Furthermore, the weighted mean score of 6.26 with a standard deviation of 0.75 implied an extremely high level of teachers' digital culture in terms of their technological skills.

In general, teachers were proficient in using the software and applications necessary for their work tasks. Technical issues were troubleshooted and resolved by teachers, and they effectively utilized digital tools for ancillary tasks such as grading, attendance, and communication. In addition, they seamlessly integrated technology into their daily routines to enhance productivity. Also, teachers actively sought opportunities to improve their technological skills and stayed updated with new tools and trends relevant to their work.

The findings indicating an extremely high level of teachers' digital culture in terms of their technological skills were consistent with existing research, which emphasized the relevance of technological skills in increasing teachers' efficiency and innovation. According to Aminu and Samah (2019), teachers who are confident in their technological abilities are more likely to use digital tools in their regular activities, thus optimizing administrative processes and promoting a more collaborative work environment. Moreover, targeted training is necessary in enhancing digital literacy, which empowers teachers to utilize technology more effectively in both administrative and instructional contexts (Riyadi et al., 2023).

Table 9 shows the perception of teachers on the level of their digital culture in terms of collaboration through technology. Additionally, it indicates the statements, the mean scores, standard deviation, and corresponding remarks.

Teachers strongly agreed (M = 6.38) that digital collaboration tools were effective in enhancing communication and teamwork among colleagues. Although the mean score (M = 6.07) for actively participating in online professional communities to collaborate and exchange ideas with other educators was slightly lower, it still reflected agreement as perceived by teachers.

TABLE 9. Level of Teachers' Digital Culture in the Schools Division of Laguna in Terms of Their Collaboration through Technology

As a teacher...	M	SD	Remarks
...I regularly use digital tools (e.g., Google Docs, Microsoft Teams) to collaborate with colleagues on work-related tasks.	6.27	0.78	Strongly Agree
...I frequently share digital resources and materials with my colleagues to enhance our teaching practices.	6.18	0.78	Strongly Agree
...I actively participate in online professional communities to collaborate and exchange ideas with other educators.	6.07	0.87	Agree
...I collaborate with colleagues on digital projects and initiatives to improve our teaching and learning processes.	6.17	0.82	Strongly Agree
...I find digital collaboration tools effective for improving communication and teamwork among colleagues.	6.38	0.73	Strongly Agree
Weighted Mean		6.21	
SD		0.80	
Verbal Interpretation			Extremely High

The results also revealed that teachers showed an extremely high level of digital culture in terms of collaboration through technology obtaining a weighted mean score of 6.21 and a standard deviation of 0.80.

To sum up, the findings indicated that teachers regularly used digital tools, like Google Docs and Microsoft Teams, to collaborate with colleagues on work-related tasks. Also, they were frequently sharing digital resources and materials to enhance their teaching practices, actively participating in online professional communities to exchange ideas, and participating in digital projects and initiatives to improve teaching and learning processes. Moreover, teachers found digital collaboration tools effective in developing communication and teamwork among colleagues.

Teachers strongly agreed (M = 6.42) that using digital tools positively impacted the quality of their teaching. Additionally, even though it was slightly lower, the mean score (M = 6.21) for teachers' creation of digital content such as videos, and interactive presentations to support their teaching still fell within the strong agreement range.

Also, the weighted mean score of 6.31 with a standard deviation of 0.72 indicated an extremely high level of digital culture among teachers in terms of digital pedagogy.

Teachers effectively integrated digital tools into their lessons to enhance their students' engagement and learning. They quickly adapted new digital tools and technologies in their teaching practices, and they were able to create digital content like videos and interactive presentations that support instruction. Teachers also encouraged students to utilize digital tools for learning activities and projects. Lastly, the use of digital tools has positively impacted the quality of their teaching.

TABLE 10. Level of Teachers' Digital Culture in the Schools Division of Laguna in Terms of Their Digital Pedagogy

As a teacher...	M	SD	Remarks
...I effectively integrate digital tools into my lessons to enhance student engagement and learning.	6.37	0.67	Strongly Agree
...I can quickly adapt to new digital tools and technologies in my teaching practices.	6.25	0.70	Strongly Agree
...I create digital content (e.g., videos, interactive presentations) to support my teaching.	6.21	0.79	Strongly Agree
...I encourage students to use digital tools for their learning activities and projects.	6.27	0.77	Strongly Agree
...the use of digital tools has positively impacted the quality of my teaching.	6.42	0.65	Strongly Agree
Weighted Mean		6.31	
SD		0.72	
Verbal Interpretation			Extremely High

Table 11 indicates the level of teachers' digital culture in terms of overall school culture as perceived by teachers. It also shows the statements, the mean scores, the standard deviation, and the corresponding remarks. The findings denoted that teachers were highly encouraged to explore and implement innovative digital practices (M = 6.44) and that schools provided sufficient opportunities for professional development in digital skills (M = 6.27). Although the latter received a slightly lower mean, both remained within the teachers' strong agreement range.

In addition, the perception of teachers indicated that they obtained an extremely high level of digital culture in terms of their school culture having an overall weighted mean score of 6.36 and a standard deviation of 0.72.

Overall, school culture supported the integration of digital tools and technologies in both teaching and administrative tasks. Additionally, schools encouraged teachers to explore and implement innovative digital practices. Teachers were also using digital tools regularly to collaborate and share resources with colleagues. Additionally, the schools provided sufficient opportunities for teachers' professional development in digital skills and promoted teachers' confidence and competence in using digital tools and technologies in their work.

TABLE 11. Level of Teachers' Digital Culture in the Schools Division of Laguna in Terms of Their School Culture

The...	M	SD	Remarks
...school culture supports the integration of digital tools and technologies in teaching and administrative tasks.	6.41	0.70	Strongly Agree
... school encourages teachers to explore and implement innovative digital practices.	6.44	0.67	Strongly Agree
...teachers regularly use digital tools to collaborate and share resources with colleagues.	6.37	0.74	Strongly Agree
... school provides ample opportunities for professional development in digital skills.	6.27	0.78	Strongly Agree
...teachers feel confident and competent in using digital tools and technologies in their work.	6.30	0.72	Strongly Agree
Weighted Mean		6.36	
SD		0.72	
Verbal Interpretation			Extremely High

Level of Digital Engagement of Teachers in the Schools Division of Laguna

The level of teachers' digital engagement regarding their utilization of digital tools, participation in digital professional development, self-efficacy in using digital tools, and communication effectiveness was determined through a survey with teachers as respondents. The findings were organized into tables and then analyzed and interpreted to provide a comprehensive analysis of teachers' digital engagement.

Table 12 shows the level of teachers' digital engagement in terms of their utilization of digital tools. Additionally, it presents the statements, mean scores, standard deviations, and corresponding remarks. Teachers strongly agreed (M = 6.51) that they can accomplish tasks faster using digital tools. While the mean score (M = 6.29) for schools' adequate support and resources for using digital tools in teachers' work was slightly lower, it still indicated a strong agreement among teachers.

Also, the weighted mean score of 6.39 and a standard deviation of 0.68 showed an extremely high level of teachers' digital engagement in terms of their utilization of digital tools.

Generally, teachers frequently used digital tools, such as software and various apps, in their daily work tasks and found them effective in improving their productivity and efficiency. They also accomplished tasks faster using digital tools and utilize a variety of them to support different aspects of their work. Additionally, as perceived by teachers, schools provided adequate support and resources for the use of digital tools in their work.

TABLE 12. Level of Teachers' Digital Engagement in the Schools Division of Laguna in Terms of Their Utilization of Digital Tools

As a teacher...	M	SD	Remarks
...I frequently use digital tools (e.g., software, apps) in my daily work tasks.	6.33	0.72	Strongly Agree
...I find the use of digital tools effective in enhancing my productivity and efficiency at work.	6.47	0.64	Strongly Agree
...I can accomplish tasks faster using digital tools.	6.51	0.61	Strongly Agree
...I use a variety of digital tools to support different aspects of my work.	6.36	0.70	Strongly Agree
...I am provided by the school with adequate support and resources for the use of digital tools in my work.	6.29	0.73	Strongly Agree
Weighted Mean		6.39	
SD		0.68	
Verbal Interpretation			Extremely High

Table 13 presents the perceptions of teachers regarding their level of digital engagement in terms of their participation in digital professional development. It also includes the statements, together with the mean scores, standard deviation, and corresponding remarks.

Teachers' participation in digital professional development has positively impacted their overall work performance, as evidenced by their strong agreement (M = 6.27). Additionally, although slightly lower, the mean score (M = 6.04) for the frequency of participation in digital professional development opportunities relevant to their teaching and other work tasks remained within the agreement range. Furthermore, the weighted mean score of 6.17 with a standard deviation of 0.80 implied an extremely high level of teachers' digital

engagement in terms of their participation in digital professional development.

TABLE 13. Level of Teachers' Digital Engagement in the Schools Division of Laguna in Terms of Their Participation in Digital Professional Development

As a teacher...	M	SD	Remarks
...I frequently participate in digital professional development opportunities relevant to my teaching and other work tasks.	6.04	0.82	Agree
...the digital professional development sessions I attend are relevant to both my classroom teaching and other work tasks.	6.14	0.84	Agree
...I can apply the skills and knowledge gained from digital professional development in all aspects of my work.	6.21	0.75	Strongly Agree
...school administration supports my participation in digital professional development.	6.20	0.83	Strongly Agree
...participating in digital professional development has positively impacted my overall work performance.	6.27	0.77	Strongly Agree
Weighted Mean		6.17	
SD		0.80	
Verbal Interpretation			Extremely High

Teachers frequently participated in digital professional development opportunities relevant to their teaching and other work tasks. The sessions they attended were pertinent to both classroom teaching and other responsibilities. Furthermore, teachers were able to apply the skills and knowledge gained from these sessions in all aspects of their work. In addition, school administration supported their participation in digital professional development, which has positively influenced their overall work performance.

Table 14 shows the teacher's perception regarding the level of their digital engagement in terms of self-efficacy in using digital tools. It also indicates the statements, the mean scores, standard deviation, and corresponding remarks.

Teachers strongly agreed (M = 6.23) that they feel confident in their ability to utilize digital tools effectively in their work, learn and adapt to new digital tools and technologies, and support students in using digital tools and technologies for their learning. Although the mean score (M = 5.98) for confidence in their ability to troubleshoot and resolve digital issues was slightly lower, it still reflected agreement among teachers.

TABLE 14. Level of Teachers' Digital Engagement in the Schools Division of Laguna in Terms of Their Self-Efficacy in Using Digital Tools

As a teacher...	M	SD	Remarks
...I feel confident in my ability to use digital tools effectively in my work.	6.23	0.69	Strongly Agree
...I am confident in my ability to troubleshoot and resolve digital issues that arise in my work.	5.98	0.80	Agree
...I am confident in my ability to integrate technology into my teaching practices to enhance student learning.	6.19	0.76	Strongly Agree
...I feel confident in my ability to learn and adapt to new digital tools and technologies.	6.23	0.75	Strongly Agree
...I am confident in my ability to support students in using digital tools and technologies for their learning.	6.23	0.74	Strongly Agree
Weighted Mean		6.17	
SD		0.75	
Verbal Interpretation			Extremely High

Additionally, teachers demonstrated an extremely high level of digital engagement in terms of self-efficacy in using digital tools, as indicated by their perception, with a weighted mean score of 6.17 and a standard deviation of 0.75.

Teachers showed strong agreement (M = 6.51) that they communicate clearly and effectively with colleagues and students using digital tools such as email and messaging apps. Additionally, the mean score (M = 6.29) for providing and receiving constructive feedback through digital communication channels still fell within the strong agreement range, even though it was slightly lower.

TABLE 15. Level of Teachers' Digital Engagement in the Schools Division of Laguna in Terms of Their Communication Effectiveness

As a teacher...	M	SD	Remarks
...I communicate clearly and effectively with colleagues and students using digital tools (e.g., email, messaging apps).	6.51	0.60	Strongly Agree
...I respond to digital communications (e.g., emails, messages) in a timely manner.	6.49	0.65	Strongly Agree
...I actively participate and engage in digital meetings and discussions.	6.37	0.69	Strongly Agree
...the digital communication tools I use are effective in facilitating clear and efficient communication.	6.47	0.64	Strongly Agree
...I provide and receive constructive feedback through digital communication channels.	6.29	0.85	Strongly Agree
Weighted Mean		6.43	
SD		0.69	
Verbal Interpretation			Extremely High

Also, the weighted mean score of 6.43 with a standard deviation of 0.69 indicated an extremely high level of digital engagement among teachers in terms of communication effectiveness.

Generally, teachers clearly and effectively communicated with colleagues and students using digital tools, responded to digital communications through email and messaging apps in a timely manner, and actively participated in digital meetings and discussions. Moreover, the digital communication tools they use were effective in facilitating clear and efficient communication, and they provided and received constructive feedback through digital communication channels.

Level of Teachers' Motivation in the Schools Division of Laguna

The level of teachers' motivation in terms of intrinsic and extrinsic motivation was determined through a survey with teachers as respondents. The findings were organized into tables and then analyzed and interpreted to provide a comprehensive analysis of teachers' digital engagement.

Table 16 indicates the level of teachers' motivation in terms of intrinsic motivation as perceived by teachers. It also shows the statements, the mean scores, standard deviation, and corresponding remarks.

The findings indicated that teachers felt a sense of accomplishment when they effectively use digital tools in various aspects of their job as reflected in the strong agreement of teachers (M = 6.53). Additionally, though slightly lower, the use of digital tools aligned with teachers' personal and professional goals still fell within the strong agreement range (M = 6.40).

Additionally, teachers' perceptions indicated an extremely high level of intrinsic motivation, obtaining an overall weighted mean score of 6.43 and a standard deviation of 0.64.

Overall, teachers were feeling a sense of accomplishment when they effectively use digital tools in various aspects of their job. Also, the use of digital tools enhanced their overall job satisfaction and enjoyment, and it motivated them to explore and integrate new digital technologies to improve work efficiency and effectiveness. In addition, collaborating with colleagues on digital initiatives inspired them to excel in their professional duties, and the use of digital tools aligned with their personal and professional goals.

TABLE 16. Level of Teachers' Motivation in the Schools Division of Laguna in Terms of Intrinsic Motivation

As a teacher, ...	M	SD	Remarks
...I feel a sense of accomplishment when I effectively use digital tools in various aspects of my job.	6.53	0.59	Strongly Agree
...using digital tools enhances my overall job satisfaction and enjoyment.	6.43	0.68	Strongly Agree
...I am motivated to explore and integrate new digital technologies to improve my work efficiency and effectiveness.	6.51	0.60	Strongly Agree
...collaborating with colleagues on digital initiatives inspires me to excel in my professional duties.	6.42	0.66	Strongly Agree
...the use of digital tools aligns with my personal and professional goals, making my work more fulfilling.	6.40	0.70	Strongly Agree
Weighted Mean		6.46	
SD		0.64	
Verbal Interpretation		Extremely High	

Table 17 presents the perceptions of teachers regarding their level of motivation in terms of extrinsic motivation. It also includes the statements, along with the mean scores, standard deviation, and corresponding remarks.

TABLE 17. Level of Teachers' Motivation in the Schools Division of Laguna in Terms of Their Extrinsic Motivation

As a teacher...	M	SD	Remarks
...I use digital tools in my work because it is required by my school administration.	6.14	1.02	Agree
...I am motivated to use digital tools because it enhances my professional reputation among colleagues.	6.31	1.02	Strongly Agree
...I use digital tools in my job to meet the expectations of parents and students.	6.16	1.11	Strongly Agree
...I am encouraged to use digital tools due to the incentives and rewards provided by my school.	5.89	1.37	Agree
...I use digital tools in my work to comply with educational standards and policies.	6.23	0.98	Strongly Agree
Weighted Mean		6.15	
SD		1.10	
Verbal Interpretation		Very High	

Teachers were motivated to use digital tools because it enhances their professional reputation among colleagues, as evidenced by their strong agreement (M = 6.31). Moreover, while slightly lower, the mean score (M = 5.89) for being encouraged to use digital tools due to the incentives and rewards provided by their school remained within the agreement range. Furthermore, the weighted mean score of

6.15 with a standard deviation of 1.10 implied a very high level of teachers' motivation in terms of extrinsic motivation.

In general, teachers used digital tools in their work because it was required by their school administration. They were motivated to use digital tools because they enhanced their professional reputation among colleagues and helped in meeting the expectations of parents and students. Additionally, teachers were encouraged to use digital tools due to the incentives and rewards provided by their school. Also, they used digital tools to comply with educational standards and policies.

IV. CONCLUSION AND RECOMMENDATIONS

The following conclusions were drawn from the results of the study. Each conclusion reflects the relationship between school heads' digital leadership and teachers' digital culture, engagement, and motivation.

Generally, there were significant relationships between the digital leadership of both Millennial and Generation X school heads and the digital culture, engagement, and motivation of their respective teachers. However, teachers' technological skills did not significantly correlate with the digital leadership of Generation X school heads. Nonetheless, it still indicated that there was no significant variation in the relationship between the digital leadership of Millennial and Generation X school heads and the digital culture, engagement, and motivation of teachers. Hence, the null hypothesis is retained. Furthermore, the quantitative findings were supported by statements from teachers during interviews, which also revealed that school heads, regardless of their generational background, can effectively navigate technology to promote schools' digital transformation.

Meanwhile, the results indicated a significant relationship between the school head's digital leadership and the digital culture of teachers. Therefore, the null hypothesis is rejected. Additionally, the qualitative data revealed that the school heads' technology-driven leadership and innovation significantly influence the digital culture of teachers by fostering digital transformation, adopting innovative practices, and bridging the digital skills gaps.

Additionally, the findings demonstrated a strong correlation between the school head's digital leadership and the digital engagement of teachers. Thus, the null hypothesis is rejected. This corresponds with the qualitative result, denoting that school heads' digital leadership positively influences teachers' digital engagement by empowering the teachers with digital skills and structured learning opportunities, encouraging various forms of digital innovation, and encouraging professional growth.

Also, the results revealed a significant relationship between the school head's digital leadership and the motivation of teachers. Therefore, the null hypothesis is rejected. This reflects the response of teachers in the interview that the school heads' digital leadership positively influences their motivation by addressing different barriers in digital learning, facilitating digital equity and resource accessibility, inspiring teachers by serving as a role model in technology adoption, and supporting and encouraging teachers in digital adaptation.

Additionally, the results showed that teachers' intrinsic motivation had stronger correlations than extrinsic motivation across all aspects of school heads' digital leadership

Finally, the digital leadership of school heads plays a role in influencing the digital culture of teachers through a variety of themes. This includes school heads' technology-driven leadership and innovation in education influencing teachers' digital culture, teachers' effective integration of technology in teaching and learning, and fostering collaboration, adaptation, and support from school heads. Meanwhile, there are also different themes showing the influence of school heads' digital leadership in teachers' digital engagement and motivation. These consist of empowerment and professional growth in the digital age and supportive and motivational digital leadership.

The researcher made the following recommendations that were consistent with the study's findings:

1. The higher authorities of DepEd, specifically in SDO Laguna, may use the results of this study, along with other similar research and data-driven feedback, as valuable references to further strengthen upskilling programs focused on enhancing school heads' digital leadership and enhancing technology-driven culture in schools. The use of current empirical findings offers a reliable foundation for crafting inclusive and targeted capacity-building programs, especially when dealing with the latest trends in educational technology.

2. School heads, especially in Generation X, may consider participating in advanced training programs focused on the latest technologies and troubleshooting strategies to continue developing their existing technical skills. This may not only enhance their ability to address more complex technical issues independently but also enable them to stay abreast and

responsive to the changing needs of the school community in various generational backgrounds.

3. School heads may introduce awards, recognitions, professional development credits, and career advancement opportunities specifically designed for teachers' digital initiatives. Outstanding achievements in innovation and technology could be integrated into the school's annual employee recognition program.

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