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DIGITAL VISUAL LEARNING TOOLS TRANSFORMATION: ITS IMPACT ON BINOGAWAN ELEMENTARY SCHOOL'S ORGANIZATIONAL CULTURE

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ABSTRACT
This study examines the impact of digital visual learning tools on the organizational culture at Binogawan Elementary School, focusing on their integration and effects on teaching methodologies, collaboration, and student engagement. In modern classrooms, the use of smart TVs, smartphones, projectors, educational videos, etc. has become increasingly prevalent, contributing to a dynamic and visually engaging learning environment. The findings indicate that these tools significantly enhance student motivation and comprehension by catering to diverse learning styles and improving visual interaction. Furthermore, the implementation of these technologies has cultivated a collaborative culture among teachers, facilitating professional development through the sharing of resources and strategies. Beyond the benefits and opportunities offered by these digital tools, this change also poses risks and challenges make the continued implementation more complicated, not to mention the school's meager or nonexistent funding for the purchase of such digital visual tools. Nevertheless, the faculty makes extensive use of the little digital visual learning resources that are available. For their instructional methods, it would be preferable if a wider range of digital visual learning resources, such as projectors, were accessible. It will benefit not only the school but hopefully extend its influence to the community of Barangay Binogawan if these materials are made more widely available.
KEYWORDS: *Digital, Visual, Transformation*

INTRODUCTION

In an era where technology is fundamental to every aspect of life, sectors across the board are experiencing continuous change. The education sector is no exception, as it undergoes significant transformation driven by digital tools, systems, platforms, and applications. The integration of digital visual learning tools into the learning process has garnered significant interest and research within the academic community. Studies have consistently shown the profound impact of visual communication can have on students' engagement, memory retention, and overall academic performance (Ruttun & Macredie, 2017)

It is undeniable that educators benefit from using visual learning tools. These tools can make lesson planning and presentation more efficient, resulting in more engaging classrooms. With the emergence of digital visual learning tools, teachers use analytics from these digital flatforms to assess student performance and personalize instruction to meet individual needs. However, relying too heavily on the digital visual learning tools can present challenges. Educators must strike a balance between using technology and traditional visual and instructional tools to ensure a well-rounded educational experience. Additionally, both educators and students need training and resources to effectively navigate these digital visual learning tools. Compared to digital visual learning tools, traditional visual and instructional tools, teachers spend hours, shell-out their own money and not to mention the extra efforts to create them. Overall, the use of digital visual learning tools in education has sparked a cultural shift that emphasizes innovation, inclusivity, and collaboration, preparing students for an increasing digital world.

This study examined the effects of digital visual learning tools on communication, pedagogy, and administration at its core. Additionally, it provided insights into the future trends. Specifically, the study explored how these tools influenced the organizational culture of Binogawan Elementary School. Moreover, the study determined that this small multi-grade public elementary school is keeping up with the fast-paced digital age but slightly falling behind. The researcher used quantitative research methods to investigate how the integration of digital visual learning tools has shaped the school's culture.

Statement of the Problem

This study was conducted to determine the impact of digital visual learning tools transformation and its changes on the organizational culture of Binogawan Elementary School.

This study answers the following specific questions:

1. Determine the level of digital visual learning tools transformation in Binogawan Elementary School in terms of:
   1.1 Availability of Digital Visual Learning Tool Infrastructure;
   1.2 Frequency of Use;
2. To determine the perception of the teachers on the benefits, opportunities, challenges, and risks of adopting digital visual learning tools in terms of:
   2.1 Benefits on lesson presentations;
   2.2 Benefits on teaching strategy;
   2.3 Opportunity on digital literacy;

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2.4 Opportunity on developing 21st-century skills;

2.5 Challenges on resistance to change;

2.6 Challenges on technical competency;

2.7 Risk on security to information;

2.8 Risk on student's physical and mental health.

3. To examine the impact of digital visual learning transformation on the organizational culture of Binogawan Elementary School after post-implementation of digital visual learning tools;

Significance of the Study

This study dissected the impact of digital visual learning tools on Binogawan Elementary School's organizational culture, focused on how technological integration influences teaching methodologies and the overall school environment. By analyzing these areas, the study provided insights that help teachers and school staff navigate the complexities of digital change.

1. Educators. This study will help educator significantly enhance their teaching practices, facilitating a more engaging and effective educational environment.

2. School Administration. This study will help school administration in fostering a more collaborative and innovative culture within the school environment. By doing so, it can help build harmonious relationships between students and administrative staff. Additionally, it aims to promote effective integration and utilization of technologies, fostering a sense of teamwork and shared objectives.

3. Students. This study will help in understanding of students' specific needs when it comes to the appropriate digital visual learning tool and make a significant impact on student engagement and participation. Visual learning methods, such as using images, videos, and other visual aids, enhance comprehension and retention by making the learning experience more interactive and enjoyable.

4. Researchers. As a researcher, this study will foster critical thinking and analytical skills, define academic career, and personal interests, expand knowledge and understanding of the chosen field. Further, the study will help develop a one-on-one connection with distinguished faculty in the field. Additionally, this study will aid to build a community of peers, faculty, and organizations both on and off campus.

5. Community. Utilization and application of research outputs will be enhanced by the school, which is a trusted institution for sharing and developing the community.

Definition of Terms

To understand the impact of digital visual aid transformation on Binogawan Elementary School's organizational culture, here are some key terms:

1. Digital Visual Learning Tools. These are learning tools that are specific type of digital resource that aim to enhance learning by incorporating visual elements. This category of tools utilizes graphical representations, animations, images, and interactive content to promote better understanding and engagement during the learning process.

2. Digital Visual Aid Transformation. The integration of digital visual aid into the areas of teaching, administration, and communication.

3. Traditional Visual and Instructional Tools. Tools used in instructional activities include active learning and assessment techniques, as well as structured workbooks and textbooks covering various subjects such as math, spelling, language, and literature. These tools may involve the use of blackboards, posters, globes, charts, textbooks, and more.

4. Organizational Culture. The set of shared beliefs, values, and practices that shape how members of an organization interact and work together. For schools, this includes the attitudes and behaviors of staff, students, and administrators.

5. Technology Integration. The process of incorporating digital tools and systems into the school's daily operations. This can involve using educational software, online resources, and digital communication platforms.

6. Student Engagement. The level of interest and involvement students show in their learning, which can be influenced by digital visual aid that make learning more interactive and personalized.

7. Digital Visual Aid Literacy. The ability of an individual to effectively use digital visual learning tools and understand their role in the learning process.

8. Resistance to Change. Refers to any behavior that support maintaining the status quo, even when there are pressures to change it. This behavior can be shown through passive opposition or active sabotage, depending on how individuals and groups perceive the proposed changes.

9. 21st-century skills. Are a broad set of knowledge, skills, work habits, and character traits believed to be crucial for success in the modern world, particularly in the context of a rapidly changing, technology-driven, and globally interconnected society.

10. Security to Information. The process of safeguarding digital information throughout its entire life cycle is meant to protect it from corruption, theft, or unauthorized access. This process encompasses multiple aspects, including hardware, software, storage devices, and user devices. It also involves implementing access and administrative controls, as well as establishing organizations' policies and procedures.

11. Risk on the use of digital visual learning tools. This dangerous phenomenon refers to human activity or conditions that involve the inappropriate use of digital visual learning tools. It can result in loss of life, injury, health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.

Understanding these terms can help in assessing how digital vi transformation affects various aspects of a school's culture and operations.

Scope and Delimitation of this Study

This study delimits in evaluating the impact of digital visual learning tools used by the teachers and staff of Binogawan Elementary School. This study was conducted from September to December of 2024 and focused on evaluating the changes that digital visual learning tools brought. Further, this study delimits in evaluating the benefits, challenges, opportunities,

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and risks in utilizing digital visual learning tools in digitally integrating to the school's organizational culture.

Review of Related Literature

In this chapter, the researcher presents relevant literature and studies that emphasizes the importance of integrating digital visual learning tools in education. The chapter also synthesizes findings from multiple published sources that explore the implications and effectiveness of these learning tools in an educational setting.

Humans are known to be visual learners. This innate characteristic has profound implications on how we acquire new knowledge. As visual learners, we are able to better comprehend and remember concepts when visual aids accompany them, as these support the brain's natural inclination to make sense of the world through visual stimuli (Hidayah, 2023).

Research has shown that visual learners often excel in tasks that involve spatial reasoning, pattern recognition, and the ability to visualize abstract concepts (Nguyen, 2022) (Norhasanah et al., 2022) (Hidayah, 2023). However, Loftus et al. (2016) explore how cognitive load varies among learners with different spatial abilities when using digital visual learning tools, suggesting that tailored instructional materials could enhance learning for those with lower spatial skills. This indicates that while digital tools can facilitate learning, their integration must be carefully managed to avoid creating suboptimal learning conditions.

Consequently, during the COVID-19 pandemic, it has greatly accelerated the adoption of digital learning tools, particularly in the field of medical education. It is worth noting that active learning strategies, such as microlearning and visual learning tools, have become essential for maintaining educational standard during the transition to online formats (Chen et al., 2022). This viewpoint is supported by Osman and Kuit (2022), who provide evidence of the effectiveness of digital modules enhancing students' understanding of complex scientific concepts, such as chemical bonding. The use of visual tools in various educational settings highlight their versatility and efficacy. Additionally, the role of digital tools in promoting self-directed learning and critical thinking is emphasized by Mays and Levine (2014), who emphasize the significance of this perspective echoed by Abdullateef (2021), who asserts that digital learning tools have a positive impact on success by fostering innovative processes and knowledge creation. However, the successful integration of these tools necessitates careful consideration of learners' needs and the educational context to maximize their benefits.

Likewise, the transformation brought about by visual learning tools also enhances student engagement and encourages teacher to adopt innovative teaching strategies. This, in turn, leads to a more collaborative and collegial atmosphere within the school, as highlighted by Kailani et al. (2021). They further stressed that such environment fosters professional growth and encourages a culture of continuous improvement among educators and found that effective collaboration between teachers and parents is essential for maximizing the benefits of tools while minimizing potential risks. This reinforces a supportive organizational culture. However, tenured educators and staff find it more challenging to adopt these visual learning tools compared to the less tenured ones, particularly those with limited technological expertise or who are nearing retirement, struggle to effectively incorporate digital visual learning tools into their teaching practices. (Omar et al., 2023)

Likewise, the integration of digital visual learning tools in elementary schools holds substantial influence over organizational culture. It supports collaboration, improves teaching practices, and encourages culture of continuous learning. These tools enable personalized learning experiences and drive a shift towards a more innovative and inclusive educational approach, as noted by Saleh (2023). Consequently, they cultivate a culture of disciplined and creative learning among both students and educators. However, the adoption of these technologies is not without its challenges, particularly in the context of the organizational culture within elementary schools. (Metatla et al., 2018). Schools with limited digital resources may face challenges in promoting innovation and collaboration. Without the necessary tools, teachers and students are unable to effectively communicate, conduct research, solve problems, and make decisions. (Studely et al., 2014). Furthermore, this lack of resources can lead to feeling of exclusion and marginalization among students from disadvantaged backgrounds, further eroding the cohesion and inclusivity of the school community. (Garland & Watton, 2001; Phillips & Shipps, 2022). Additionally, schools in lower-income areas may lack the resources to provide reliable access to these technologies, putting disadvantaged students at a further educational disadvantage (Nottingham et al., 2022).

In fact, as elementary schools increasingly adopt technology, the importance of digital visual learning tools in improving learning outcomes is expected to grow. This calls for more research and development in this area as well as the need to address the challenge of effectively using these tools. One of the common concerns is the underutilization of computers and other technologies in the classroom, which is often attributed to teachers' lack of technical competency. (Prostova et al., 2020). Moreover, the underutilization of digital visual learning tools in the classroom can be attributed to the limited technical competency of teachers (Shabiralyani et al., 2015). Various studies have highlighted the importance of teachers' technology related knowledge and skills, as well as their beliefs about the role of technology in education, in successfully integrating digital tools (Omar et al., 2023; Hixon & Buckenmeyer, 2009; Buza & Mula, 2017; Tan & Subramonyam, 2023). Additionally, Tan & Subramonyam, (2023) states that teacher's lack of technical knowledge and skills can lead to challenges in the classroom and a disconnect between the technology and the learning objectives.

Consequently, while digital visual learning tools like interactive whiteboards and educational software are increasingly becoming common in elementary school classrooms with other schools, there are important risks and challenges that educators and need to consider. One particular concern is the collection and storage of student data by these digital learning platforms.

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As students interact with these tools, a wide range of personal information can be gathered, including academic performance, behavioral patterns, and even biometric data. (Nottingham et al., 2022). This data may be shared with third-party providers without the full knowledge or consent of parents, which poses serious privacy and security risks (Nottingham et al., 2022). Furthermore, the long-term implications of this data collection are not yet fully understood. The digital footprints created by students today could potentially follow them into adulthood and influence future opportunities.

Additionally, the excessive dependence on digital visual learning tools can reduce student engagement with traditional learning approaches, such as hands-on activities, peer-to-peer interactions, and face-to-face instruction (Cheshmehzangi et al., 2022). Although digital technologies can improve specific aspects of learning, they should not entirely substitute established pedagogical methods that promote critical thinking, social-emotional growth, and a comprehensive educational experience (Peck et al., 2021).

While there is ample evidence supporting the benefits of incorporating these digital visual learning tools to enhance student learning and engagement, the widespread adoption of these tools in elementary schools is often hindered by resistance to change within the organizational culture (Francon, 2019). Of the main reason for this resistance is the deeply ingrained traditional teaching methods that have been prevalent in many elementary schools for decades. Teachers, in particular, can pose a significant barrier to the successful implementation of digital innovations and the effective use of digital visual learning tools as they may perceive them as a threat to their established practices and expertise (AL-Takhayneh et al., 2022). This resistance is rooted in various factors, such as fear of the unknown, preference of comfort and familiarity of the status quo, or lack of confidence in effectively utilizing new technologies (Souheyla & Benmansour, 2022) (AL-Takhayneh et al., 2022).

Furthermore, the introduction of digital visual learning tools can challenge student's preconceived notions of learning itself. When Educational technology is used to promote greater autonomy and self-directed learning opportunities, it can clash with student's past experiences and require a shift in their understanding of the roles of both students and teachers (Åkerlind & Trevitt, 1999). This can result in resistance from students who are accustomed to a more traditional, teacher-centered approach to instruction (Johnson et al., 2009).

Additionally, utilizing digital visual learning tools like interactive whiteboards, educational software, and multimedia presentations can help develop these essential skills. These resources not only improve the learning experience but also equip students for the technological challenges they will face in the future. Skills for the 21st century, including critical thinking, effective communication, teamwork, and creativity, are crucial for students to succeed in today's world. (Metatla et al., 2018) As the digital landscape continues to evolve, educators must adapt their teaching strategies to effectively leverage the available technology and provide individualized learning experiences for their students. This requires a deep understanding of the impact of digital visual learning tools on the development of 21st-century skills and a willingness to embrace the challenges and opportunities that come with this technological transformation. (Zimmer et al., 2020) While the advantages of digital visual learning tools are well acknowledged, it's essential to thoughtfully consider how these tools are implemented and integrated in the classroom. However, tt is important to recognize that the growing reliance on digital tools can result in a more sedentary lifestyle, which raises the risk of childhood obesity and other health issues. Additionally, prolonged screen time can lead to eye strain, dry eyes, and possibly nearsightedness (Zheng et al., 2022).

With the literature and studies elucidated above, it is clear that digital visual learning tools have a significant impact on and greatly influence the organizational culture of schools. However, there are few, if any, studies on the efficiency and consequences of using these tools compared to the traditional visual instructional tools. Therefore, further in-depth study is needed to integrate them more efficiently. This included providing tailored digital learning tools not only to students, but also, taking into account the technical competency of teachers and staff, who may still use traditional visual aids and instructional tools.

Additionally, the researcher aims to determine whether Binogawan Elementary School is benefiting from the use of digital visual tools in their daily activities, or if they continue to rely on traditional aid without experiencing a significant impact. It is important to acknowledge that these tools also have limitations. Therefore, the researcher intends to explore these areas in order to identify the optimal ways to utilize digital tools in a small, multi-grade public elementary school.

Theoretical Framework

To support the impact of digital visual learning tools and their effect on the organizational culture of Binogawan Elementary School, the Theory of Transformative Learning by Jack Mezirow was utilized. Mezirow's theory posits that transformative learning consist of two main focuses: instrumental learning and communicative learning. The former centers around task-oriented problem-solving and the evaluation of cause and effect, while the latter focuses on how individuals communicated their feelings, needs, and desires.

Mesirow goes on to explain that transformative learning theory suggests that individuals can experience a profound shift in their perspective, beliefs, and assumptions through critical reflection and discourse. This process of transformative learning can have significant implications for how organizations approach the digital visual learning tools transformation. As these digital visual learning tools are utilized, they have holistic impact on the transformation of an organization, including its culture, processes, and collaborative approach (Wagner & & Wäger, 2019).

This study understands the transformative effect of utilizing digital visual learning tools in elementary educational settings. The theory helped to comprehend how this integration of digital

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technology can shift perspectives, beliefs, practices, strategies, and pedagogy. It also explores the resulting discourse, challenges, and coping strategies.

Conceptual Framework

Figure 1: The Paradigm of the Study

This study developed a user-friendly guide to address the difficulties and challenges that arose from the transformation and integration of digital visual learning tools in an elementary education setting. To do this, as shown on Figure 1 (Input), it is crucial to determine the current digital visual learning tools atmosphere and the status quo regarding the use of these tools by the teachers and staff of Binogawan Elementary School. The study will identify any changes in practices and methods related to these tools and evaluate the impact they on learning. Additionally, the study will gather information on the challenges faced by teachers and staff when using these tools as well as the opportunities the create and the potential risks associated with their use.

Figure 1 (Process), this study utilized and incorporated both quantitative method. The quantitative data will be gathered through surveys and canned questionnaires, and the sets of data gathered, statistical treatment has been applied using advanced Microsoft Excel to manipulate and interpret the information.

Figure 1 (Output), the result of this study will be a user-friendly guide for digital visual learning tools transformation and technology integration tailored for general users with or without technical competency which not only presents the pros and cons but highlights the opportunities and provided tips for improving management and teaching strategies without the fear of digital exploitations and cyber violations.

Methodology

This chapter focuses on several key aspects of the study, including the research design, local of the study, respondents, sampling procedure, data gathering procedure, research instrument, validation of instrument, data analysis, and ethical considerations.

Research Design

The study utilized the descriptive design method and examined the impact of the dependent variable. By employing descriptive analysis, the research ascertained the impact of the dependent variable on the independent one. Additionally, this design facilitated the comprehension of the level of impact on dynamics between the two variables. Hence, the descriptive design method was the most appropriate approach for evaluating the given condition.

Locale of the Study

This study was conducted in Binogawan Elementary School. The locale is the elementary school of Barangay Binogawan located in San Policarpo, Eastern Samar. The school is a multi-grade school and offer levels from kindergarten to Grade VI.

Respondent of the Study

There are a total of 12 faculty members, including the school head, who has been the respondents in this study. Total enumeration sampling was used, including all faculty and staff of the school.

Sampling Procedure

The study utilized a total enumeration sampling procedure, which involved the entire population of the locale as respondents. Therefore, all faculty members, including the school head, have been the target respondents for this study.

Research Instrument

The research questionnaire was adapted from the Learner Use of Technology (Das and Mishra, 2016) research instrument and modified to include considerations for digital visual learning tools. It consisted of three sections. The first section contains questions about the current level and use of digital visual learning tools by the respondents. The second section are questions intended for the perceptions of the respondent on the benefits, opportunities, challenges, and risks on adoption of the digital visual learning tools. The third section are questions focused on the impact and changes resulting from the use of these tools.

Data Gathering Procedure

The researcher obtained permission thru a signed permission to conduct a study from the school head. After approval, the questionnaires were distributed to the faculty and staff of the school. The respondents answered the questionnaire based on their willingness and current knowledge. They were asked to evaluate the current digital visual learning tools being utilized and the status quo on key factors, including the availability and frequency of use of digital visual learning tools, as well as how these tools impact their lesson presentations and teaching strategies. The respondents were then asked on their

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perceptions on the use of digital visual learning tools on the context of their benefits, opportunities, challenges, and risks. Lastly, the respondents had answered questions related to the impact of digital visual learning tools transformation on their daily practice and their organization.

Validation of Instrument

The survey questionnaire has undergone validation through a reliability test using Cronbach's Alpha. Additionally, the thesis adviser has been consulted to ensure the questions align with the three objectives of this study and maintain reliability and consistency.

Measurement of Variable

To measure the level of impact and changes caused by Digital Visual Learning Tools to the organizational culture of Binogawan Elementary School, Likert 5-point (Table A) and 3-point (Table B) frequency scale were utilized: 1) Never, 2) Rarely, 3) Sometimes, 4) Often, 5) Always; 1) Strongly Disagree, 2) Disagree, 3) Neutral, 4) Agree, 5) Strongly Agree; Where range is 5 – 1 = 4. Interval is 4 / 5 = 0.80 with lower and upper limit as shown on Table A. To measure the availability of the given digital visual learning tools, the 3-point frequency scale was utilized. 3) Yes, 2) No, but the school plans to buy for the next 12 mos., 1) No, and the school don't have plans to buy for the next 12 mos. Where range is 3 – 1 = 2. Interval is 2 / 3 = 0.6666 rounded to 0.67 with upper and lower limit as shown on Table B. Further, the same 5-point frequency scale will be used to determine the level of impact of the use of digital visual learning tools on the organizational culture of Binogawan Elementary School.

Table A: 5-Point Likert Scale

		<Limit		>Limit
5	**Strongly Agree/Always**	4.20	to	5.00
4	**Agree/Often**	3.40	to	4.19
3	**Neither/Sometimes**	2.60	to	3.39
2	**Disagree/Rarely**	1.80	to	2.59
1	**Strongly Disagree/Never**	1.00	to	1.79

Table B: 3-Point Likert Scale

		<Limit		>Limit
3	**Yes**	2.34	to	3.00
2	**No, but the school plans to buy for the next 12 mos.**	1.67	to	2.33
1	**No, and the school don't have plans to buy for the next 12 mos.**	1.00	to	1.66

Analysis of Data

The data gathered were tabulated, organized, and analyzed using appropriate descriptive and inferential statistics, such as frequency counts, percentages, and median. These statistical tools were used to analyze and interpret the data from the survey questionnaire. To interpret the responses from respondents in parts 1 and 2 of the research instrument, the weighted mean and overall mean with their corresponding response have been used.

Ethical Considerations

This study has adhered to institutional guidelines when conducting research. Respondents were fully informed about the contents of the questionnaires and interview questions, as well as how their responses will be used and any potential consequences. The researcher has assisted the respondents in providing their responses, while also explaining their rights to access their information and the right to withdraw from the study at any time.

Results and Discussions

This chapter provides presentation of statistical data relative to the problems posited. The corresponding analysis and interpretation of data are incorporated in this portion of the study.

To study the impact of digital visual learning tools transformation on Binogawan Elementary School's organizational culture, the staffs including the school head were surveyed.

Table 1: Respondents Role

Role	f	Rate
Teacher	11	92%
Admin	0	0%
Principal/head	1	8%
Support Staff	0	0%
Others	0	0%
Total	12	100%

Table 1 shows the distribution of respondents of this study which consists of 92% teachers and one school head.

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Table 2: Respondents Tenure

Years	f	Rate
1 to 5	3	25%
6 to 10	6	50%
11 to 15	0	0%
16 to 20	1	8%
20 to 25	1	8%
>25 yrs	1	8%
Total	12	100%

Among these, 75% have tenures of less than 11 years (Table 2). A significant number of teachers are handling Grade 5 students, while an equal percentage of teachers handle Grades 1 to 4 at 17%. There are fewer teachers assigned to kindergarten and Grade 6 (Table 3).

Table 3: Respondents Grade Handled

Grade	f	Rate
Kinder	1	8%
Grade 1	2	17%
Grade 2	2	17%
Grade 3	2	17%
Grade 4	2	17%
Grade 5	3	25%
Grade 6	1	8%

Figure 1.1: Availability of Digital Visual Learning Tools

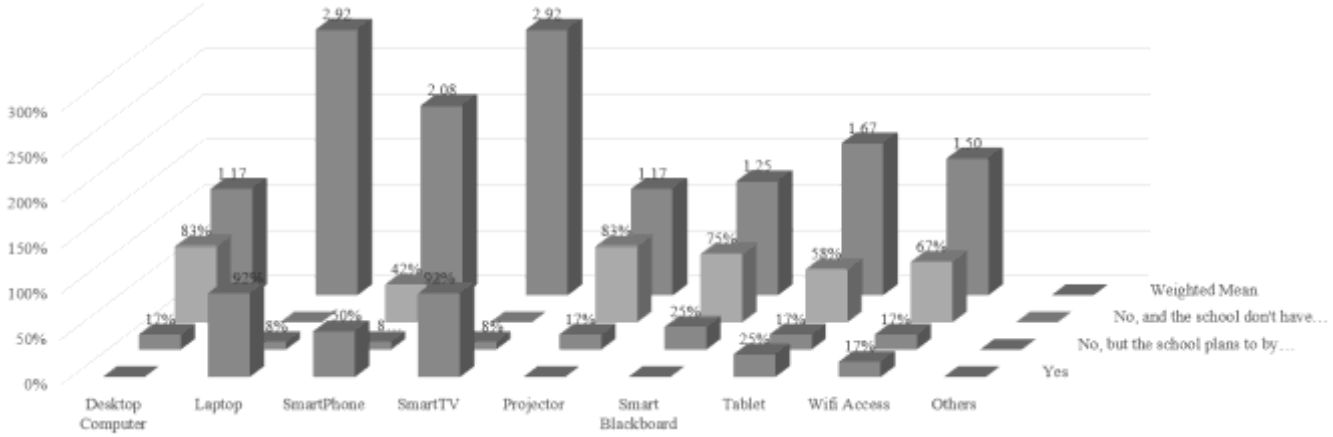

Figure 1.1 presents the data on the availability of digital visual learning tools at Binogawan Elementary School. With the given eight samples of digital visual learning tools available in the market that are used by other schools, the majority (92%) of respondents indicated that laptops and smart TVs are the most available, resulting in a weighted mean of 2.92, as illustrated in Figure 1.1. Followed by the availability of smartphones was reported at 50% of the respondents, with a weighted mean of 2.08 shown in the same figure. It is concerning that projectors and desktop computers, which are commonly found in the market, are reported as unavailable in the school, with 83% of the respondents indicating they are not present, leading both to a weighted mean of 1.17, as depicted in the same figure. With an overall average of 1.83 across all eight weighted means, it is clear that the school has limited access to the variety of digital visual learning tools available in the market that are being utilized by other schools. This situation is understandable given that Binogawan Elementary School primarily serves low-income families, has a small staff of only 12 members, and operates with a limited to none budget for providing digital visual learning resources. This observation aligns with the findings of Nottingham et al. (2022), which highlight that schools in underprivileged areas often lack the resources to consistently offer such technologies, potentially hindering the educational opportunities for disadvantaged students.

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Figure 1.2: Frequency of Use of the Digital Visual Learning Tools

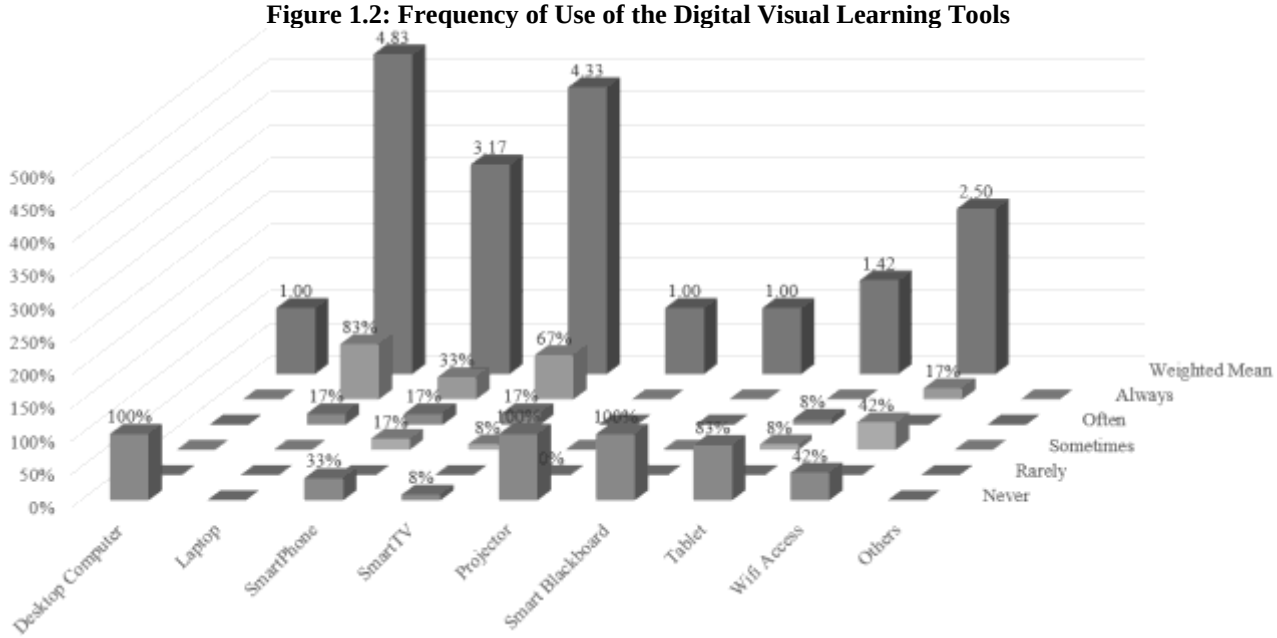
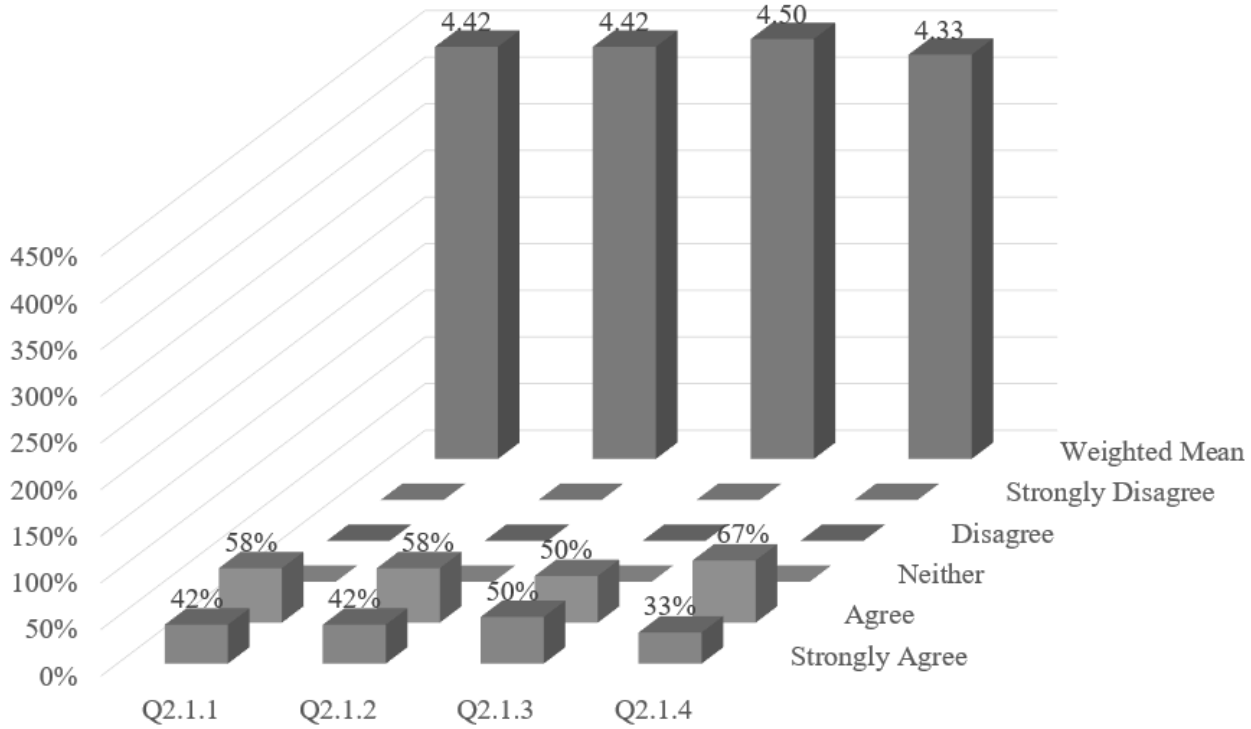


Figure 1.2 demonstrates, as anticipated, a high proportion of use of the available digital visual learning tools, with laptops (83%) and SmartTVs (67%) being used constantly with the remaining tools combined averaging at 84% in frequency of use. Contrary to Prostova et al. (2020), who found that teachers' lack of technical competency is frequently blamed for the underutilization of computers and other technologies in the classroom, the high frequency is likely to indicate that respondents possess the technical competencies necessary to use the available digital visual learning tools. The unavailable resources, on the other hand, which average 40% combined as anticipated, include those that have never been used, with desktops, projector and smartboard accounting for a higher percentage of 100%.

Figure 2.1: Benefits of Lesson Presentation



Four affirmative questions were posed to assess whether digital visual learning tools provide benefits for teachers to innovate their lesson presentations. When asked if the tool enhances students' comprehension and retention of the material, 42% strongly agreed and 58% agreed, as illustrated in Figure 2.1 under Q2.1.1, resulting in a weighted average of 4.42, indicating strong agreement based on the Likert Scale. A similar response was noted when participants were asked if they had observed changes in student participation or classroom dynamics due to the use of these digital visual learning tools, as

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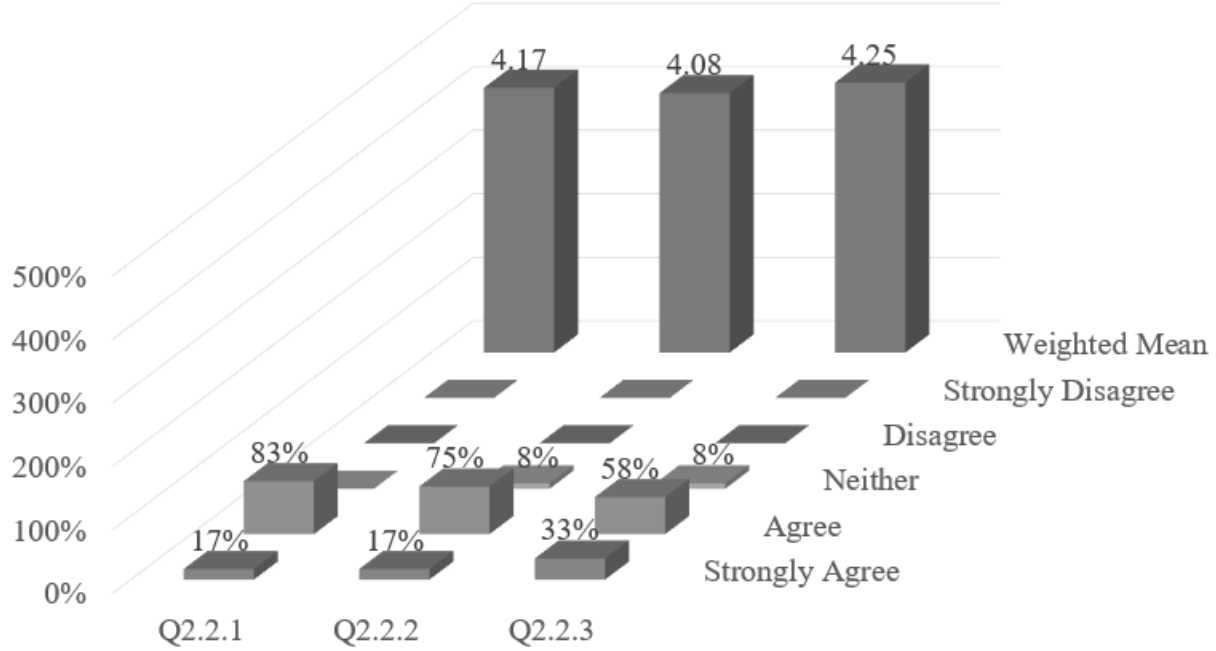
shown in Q2.1.2. When inquired whether they believe that using digital visual tools enables them to present information in more creative and engaging ways, 50% strongly agreed and 50% agreed, yielding a weighted mean of 4.50, which also reflects strong agreement on the Likert Scale, as seen in Q2.1.3 in the same figure. Lastly, when respondents were asked if using digital visual learning aids facilitates differentiated instruction or accommodates various learning styles, 67% agreed and 33% strongly agreed, resulting in a weighted average of 4.33, again indicating strong agreement on the Likert Scale. With an overall average of 4.42 across the four weighted means, it signifies that respondents strongly believe there are potential benefits for innovative lesson presentations through the use of digital visual learning tools.

The outcome supports Kailani et al.'s (2021) assertion that the transformation brought about by visual learning aids also improves student engagement and motivates educators to use creative teaching techniques in presenting lessons. As a result, the classroom environment becomes more cooperative and friendly.

Figure 2.2: Benefits on Teaching Strategy



Three questions were posed to evaluate the potential benefits with the use digital visual learning tools on teaching strategies. When asked if these tools enable more flexible and adaptable teaching methods, 83% of respondents agreed, resulting in a weighted mean of 4.17, as illustrated in Figure 2.2 under Q2.2.1. In response to whether they adopted new pedagogical approaches due to the use of digital visual tools, 75% agreed, yielding a weighted mean of 4.08, as shown in Q2.2.2 on the same figure. The final question inquired about the impact of digital visual tools on their overall teaching strategies, with 58% agreeing and a weighted mean of 4.25, as indicated in Q2.2.3 on the same figure. With an overall average of 4.17 across the three weighted means, it is clear that respondents believe digital visual learning can provide benefits to significantly enhance and transform their teaching strategies.

This finding is consistent with Chen et al., 2022, who found that during the COVID-19 pandemic, the utilization of digital learning tools increased significantly, notably in the sector of medical education. It is worth emphasizing that active learning tactics, such as microlearning and visual learning aids, have become critical for preserving educational standards as they shift to online formats. This clearly demonstrates the effectiveness of these technologies in easing and innovating teaching strategies.

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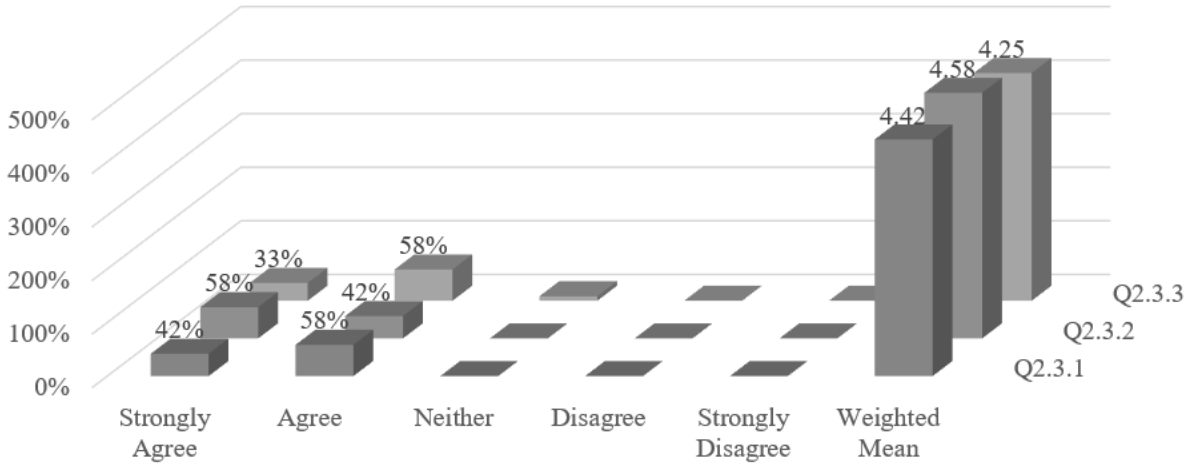
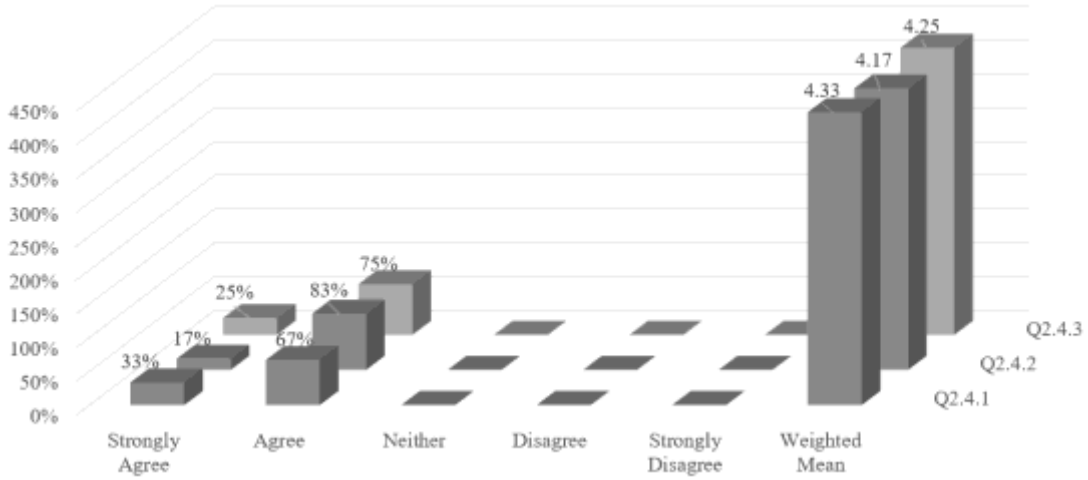
Figure 2.3: Opportunity on Digital Literacy



Three questions were posed to analyze the potential impact of digital visual learning tools on digital literacy. When respondents were asked if they believe that using these tools could enhance their own digital literacy skills, 58% agreed, resulting in a weighted mean of 4.42, as shown in Figure 2.3 under Q2.3.1. When asked about the importance of developing strong digital literacy skills in today's world, 58% strongly agreed, yielding a weighted mean of 4.58, as indicated in Q2.3.2 on the same figure. Additionally, when inquired whether incorporating digital visual learning tools could better prepare students for future success in higher education and the workforce, another 58% agreed, with a weighted mean of 4.25. With an average of 4.42 from the three weighted means, it is clear that respondents strongly believe that the use of digital visual learning tools can significantly enhance one's digital literacy.

This finding is supported by Mays and Levine (2014) and Abdullateef (2021), who argue that the importance of digital tools in supporting self-directed learning and critical thinking improves achievement by encouraging innovative processes and knowledge generation.

Figure 2.4: Opportunity on 21st Century Skills



Three questions were posed to explore the potential opportunity with using digital visual learning tools in enhancing 21st Century Skills. When asked if these tools provide unique or effective methods for developing 21st-century skills compared to traditional teaching approaches, 67% of the respondents agreed, with 37% strongly agreeing, resulting in a weighted mean of 4.33, as illustrated in Figure 2.4 under Q2.4.1. In response to whether the use of these tools can foster a more positive attitude towards learning and technology among students, 83% agreed, leading to a weighted mean of 4.17, as shown in Q2.4.1 on the same figure. Lastly, when inquired if incorporating digital visual learning tools could better prepare students for future success in higher education and the workforce, 75% of respondents agreed, yielding a weighted mean of 4.25. The average of 4.25 from the three weighted means indicates that respondents strongly believe that utilizing digital visual learning tools will significantly aid in developing students' 21st-century skills. Metatla et al. (2018) highlight that using digital visual learning tools such as interactive whiteboards, educational software, and multimedia presentations can significantly enhance the development of essential skills. These resources not only enrich the learning experience but also prepare students for the technological challenges ahead. In today's world, skills for the 21st century—like critical thinking, effective communication, teamwork, and creativity—are vital for students' success.

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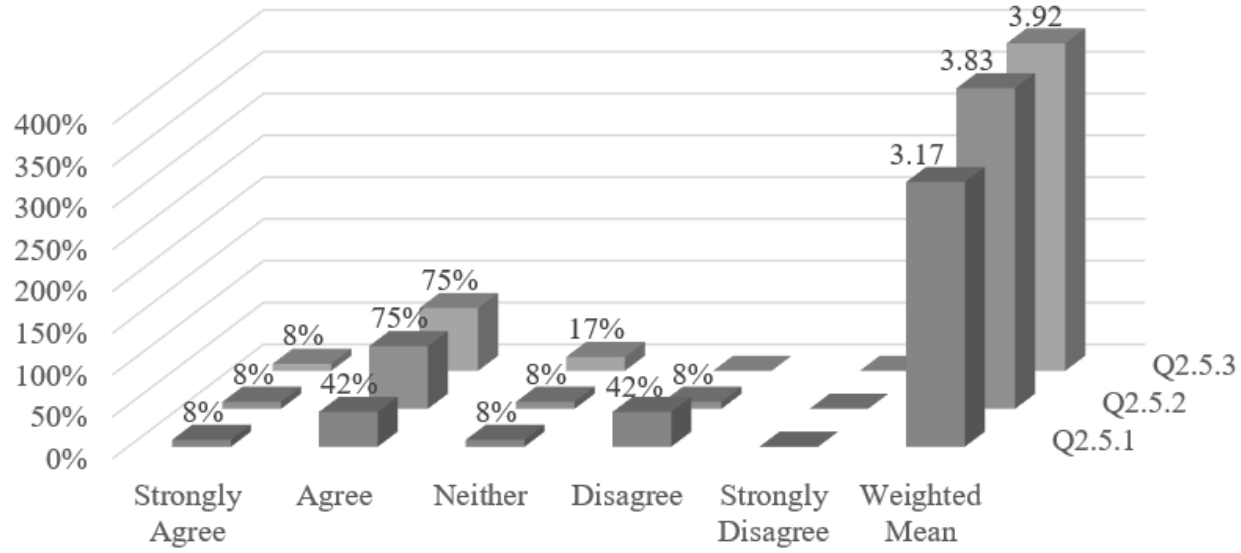
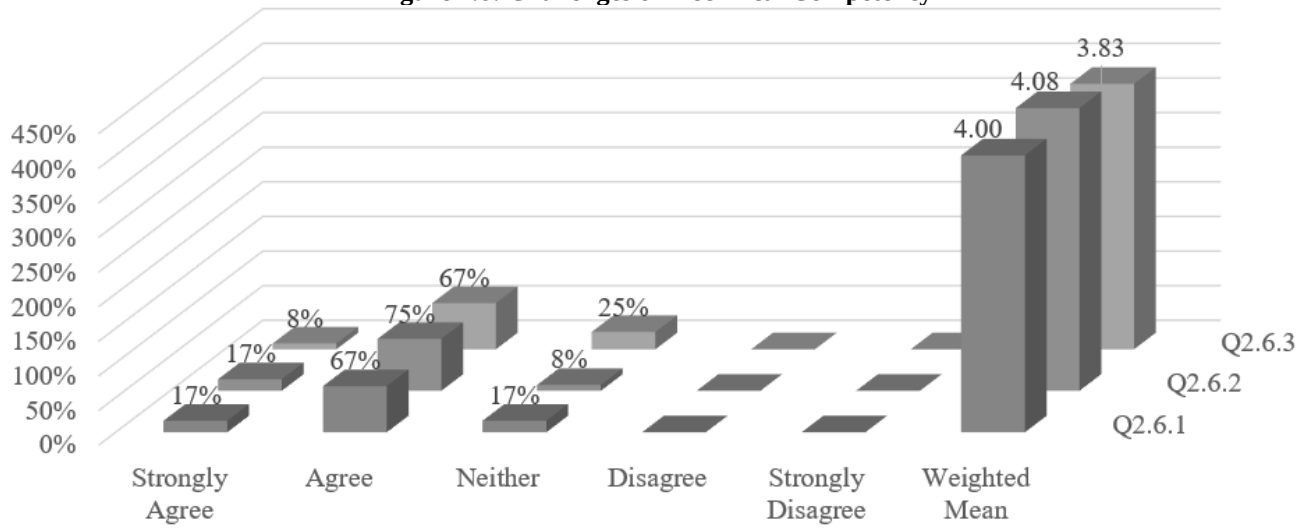
Figure 2.5: Challenges on Resistance to Change



Three questions were posed to explore the potential challenges of digital visual learning tools in relation to resistance to change. The respondents were asked if they had concerns or hesitations about incorporating these tools into their teaching, resulting in a split where 42% agreed and disagreed, leading to a weighted mean of 3.17 as shown in Figure 2.5 under Q2.5.1. When asked if using digital visual tools necessitates a significant change in their established teaching practices, 75% agreed, yielding a weighted mean of 3.83, as indicated in Q2.5.2 on the same figure. Additionally, another 75% agreed when questioned about whether factors such as school culture, access to resources, and time constraints might contribute to their resistance in adopting digital visual tools, resulting in a weighted average of 3.92, as reflected in Q2.5.3 on the same figure. With an average of 3.64 from the three weighted means, it is evident that the respondents are experiencing resistance to change.

This finding is supported by AL-Takhayneh et al., 2022, who state that teachers, in particular, can be a significant barrier to the successful implementation of digital innovations and the effective use of digital visual learning tools because they may see them as a threat to their established practices and expertise. Furthermore, this reluctance stems from a variety of variables, including fear of the unknown, a preference for comfort and familiarity with the status quo, or a lack of confidence in efficiently employing new technology (Souheyla & Benmansour, 2022) (AL-Takhayneh et al., 2022). This is for the fact that 75% of respondents shown in Table 1 had been in service for ten years or fewer and simply means that tenured individuals are not the only one's susceptible to resistance to change.

Figure 2.6: Challenges on Technical Competency



Three questions were asked to investigate the potential challenges that digital visual learning tools pose to respondents' technical competency. When asked if they had concerns about their own know-how, 67% agreed, resulting in a weighted mean of 4.00, as illustrated in Figure 2.6 under Q2.6.1. Similarly, 67% agreed that their school sufficiently invests in providing teachers with the necessary resources and support to effectively utilize these digital visual learning tools, although 25% were uncertain, leading to a weighted mean of 3.83, as shown in Q2.6.3 on the same figure. A notable 75% of respondents

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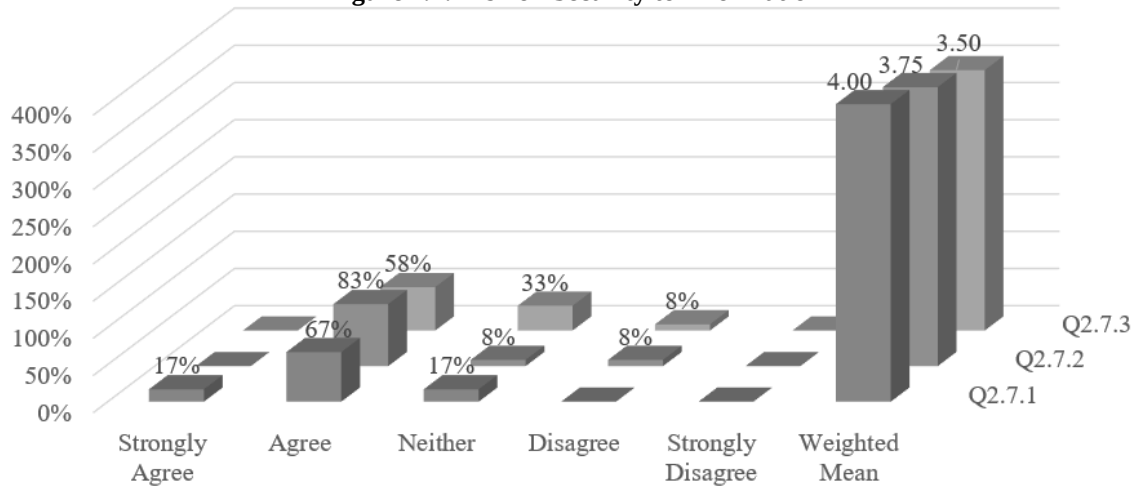
agreed that mastering digital visual learning tools would require a significant amount of time and effort, with an additional 17% strongly agreeing, culminating in a weighted mean of 4.08, as indicated in Q2.6.2 on the same figure. With an average weighted mean of 3.97 across the three questions, it is clear that respondents face challenges related to technical competency when implementing these digital visual learning tools.

This result is emphasized by Prostova et al. (2020) on a prevalent issue: the underutilization of computers and other technologies in classrooms, often due to teachers' insufficient technical skills. Furthermore, Tan and Subramanyam (2023) point out that a teacher's lack of technical knowledge and skills can create challenges in the classroom and result in a disconnect between technology and learning objectives.

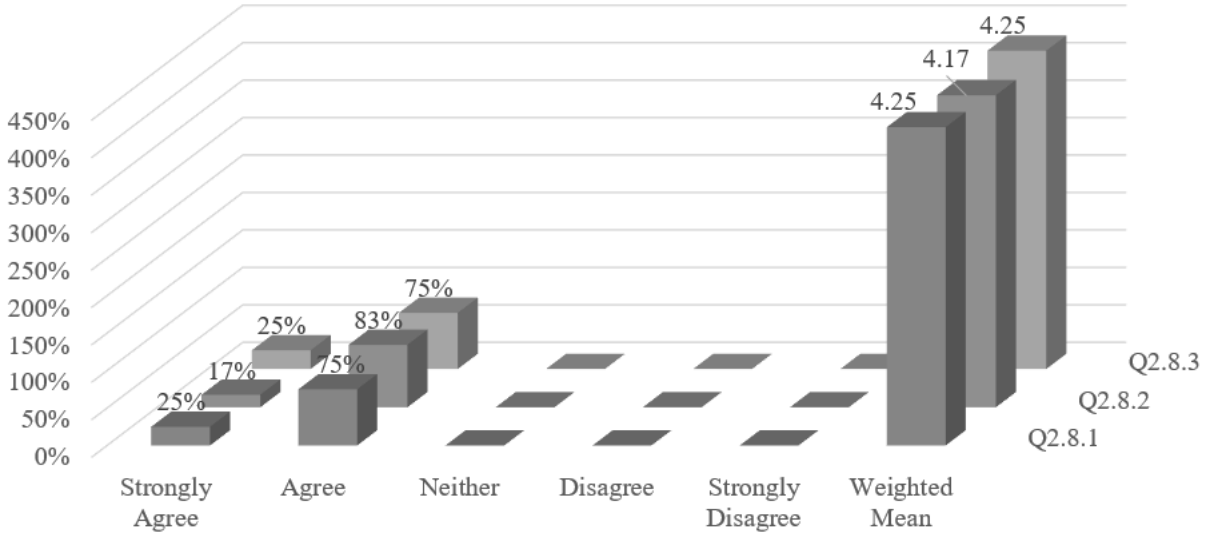
Figure 2.7: Risk on Security to Information



Three questions were posed to explore the potential risks associated with the use of digital visual learning tools and their impact on respondents' information. When asked about their concerns regarding the privacy and security of student data while using these tools, 67% expressed agreement, and an additional 17% strongly agreed, leading to a weighted mean of 4.00, as shown in Figure 2.7 under Q2.7.1. Furthermore, 83% of respondents felt that their school offers clear guidelines and support for addressing information security issues related to digital visual learning tools; however, 8% were uncertain, and another 8% disagreed, resulting in a weighted mean of 3.75, as indicated in Q2.7.2 on the same figure. When inquired about whether they believe they have received sufficient training on protecting their devices and data from cybersecurity threats, 58% agreed, while 33% were uncertain, yielding a weighted mean of 3.5, as illustrated in Q2.7.3 on the same figure. The overall average of 3.75 from the three weighted means suggests that respondents are aware of cybersecurity risks and recognize the importance of securing information when utilizing digital visual learning tools.

The concerns regarding information security risks highlighted by Nottingham et al. (2022) indicate that as students use these tools, a variety of personal information can be collected, such as academic performance, behavioral patterns, and even biometric data. They further emphasized that this information might be shared with third-party providers without the complete knowledge or consent of parents, creating significant privacy and security risks.

Figure 2.8: Risk on Physical and Mental Health



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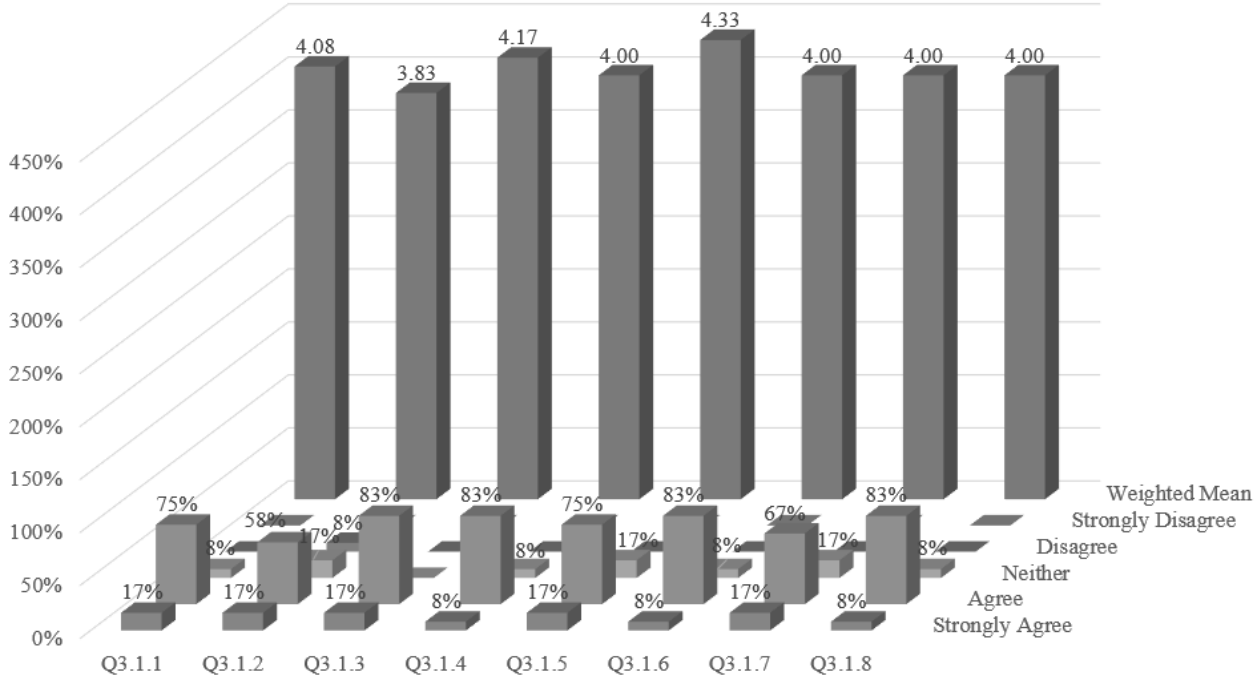
Three questions were posed to explore the potential risks associated with the use of digital visual learning tools on physical and mental health. When asked if they were concerned about the potential physical effects of prolonged screen time on students, such as eye strain, headaches, or sleep disturbances, 75% agreed and another 25% strongly agreed, resulting in a weighted mean of 4.25, as shown in Figure 2.8 under Q2.8.1. The same results emerged when respondents were asked about their concerns regarding the impact of digital visual learning tools on students' mental and emotional well-being, including increased stress, anxiety, or social isolation, as indicated in Q2.8.3. Additionally, 83% agreed when asked if they were aware of any specific physical health conditions (e.g., vision defects) among their students that might be worsened by the use of digital visual learning tools, as reflected in Q2.8.2. The high weighted mean of 4.22 strongly suggests that respondents are highly aware of the physical and mental risks associated with the overuse of these digital visual tools.

Zheng et al., 2022 highlighted the importance to acknowledge that increased use of digital tools can lead to a more sedentary lifestyle, increasing the risk of childhood obesity and other health problems and further extended screen time can contribute to eye strain, dry eyes, and potentially nearsightedness.

Figure 3.1: Impact on the Use of Digital Visual Learning Tools



To assess the impact of digital visual learning tools on the organizational culture of Binogawan Elementary School, eight questions were posed to the respondents. When inquired about the consistent use of digital visual learning tools across various classrooms and subjects, 75% agreed, with an additional 17% strongly agreeing, leading to a weighted mean of 4.08, as illustrated in Figure 3.1 under Q3.1.1.

Table 4: Respondents Subject/s Handled

Subjects	f	Rate
Araling Panlipunan	5	42%
ESP	7	58%
Language	3	25%
Mathematics	7	58%
Science	3	25%
English	4	33%
Filipino	6	50%
Makabansa	3	25%
MTB-MLE	1	8%
None/Admin	1	8%
EPP	4	33%
GMRC	5	42%
MAPEH	6	50%
Reading & Literacy	2	17%
Others	0	0%

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This indicates that among the fourteen subjects taught, as detailed in Table 4, the use of digital visual learning tools is particularly beneficial in ESP and Mathematics, which have the highest number of teachers involved. When respondents were asked if they feel supported in effectively implementing these tools, 58% agreed, and another 17% strongly agreed; however, 17% remained uncertain, resulting in a weighted mean of 3.83, as shown in Q3.1.2 of the same figure. This suggests that the school administration is supportive of the implementation of digital visual learning tools. Furthermore, when respondents were asked if their students are more engaged and motivated during lessons that utilize these tools, 83% agreed, with an additional 17% strongly agreeing, leading to a weighted mean of 4.17, as indicated in Q3.1.3 on the same figure. This clearly demonstrates that digital visual learning tools significantly enhance engagement in lesson presentations and discussions. When asked whether digital learning tools have improved students' learning outcomes, 83% agreed, and an additional 8% strongly agreed; however, 8% were uncertain about the impact of these tools on students' outcomes. This resulted in a weighted mean of 4.0, as shown in Q3.1.4 in the same figure. This suggests that students experience improved learning outcomes when these tools are used to present lessons. When respondents were asked if these tools have enhanced collaboration among teachers, 75% agreed, with 17% strongly agreeing, while another 17% were uncertain, leading to a weighted mean of 4.33, as indicated in Q3.1.5 in the same figure. This indicates that despite the 17% of uncertain respondents, there is still an improvement in collaboration among teachers facilitated by these digital visual learning tools. When asked whether digital visual learning tools have created a more positive and engaging learning environment, 83% of respondents agreed, with an additional 8% strongly agreeing, while another 8% were uncertain. This led to a weighted mean of 4.0, as indicated in Q3.1.6 of the same figure. This suggests that digital visual learning tools contribute to a more positive and engaging atmosphere. Regarding the question of whether these tools enhance communication between teachers, administrators, and parents, 67% agreed, with an additional 17% strongly agreeing. However, 17% of respondents remained uncertain. This also resulted in a weighted mean of 4.0, as shown in Q3.1.7 of the same figure, indicating that digital visual learning tools help improve communication among stakeholders. When asked about the professional development opportunities provided by digital visual learning tools, 83% of respondents agreed, with an additional 8% strongly agreeing. However, 8% of the respondents were uncertain. This led to a weighted mean of 4.0, indicating that respondents believe there are professional opportunities available through the use of digital visual learning tools.

The weighted mean of the eight questions resulted in an average of 4.05, indicating that there is an impact of digital visual learning tools on the organizational culture at Binogawan Elementary School. As noted by Kailani et al. (2021), the changes introduced by these visual learning tools boost student engagement and motivate teachers to embrace innovative teaching methods. This, in turn, creates a more collaborative and collegial environment within the school. They also emphasized that such an atmosphere promotes professional development and nurtures a culture of ongoing improvement among educators. Additionally, they found that strong collaboration between teachers and parents is crucial for maximizing the advantages of these tools while reducing potential risks. This underscores the importance of a supportive organizational culture.

Summary of Findings, Conclusions and Recommendations

This chapter provides a summary of the findings, conclusions, and recommendations presented.

Summary of Findings

Based on a comprehensive analysis of the collected data and the results obtained, the following key findings are summarized.

1. The Level of Digital Visual Learning Tools Transformation in Binogawan Elementary School with respect to its Availability and Frequency of Use.

1.1 With respect to the digital visual learning tools availability at the school, the overall mean was 1.83 interpreted as No, but the school plans to buy for the next 12 mos.

1.2 With respect to the frequency of use, the overall mean was 2.41 interpreted as Rarely used.

2. The Level Perception of Teachers in Adopting Digital Visual Learning Tools in respect to Benefits, Opportunities, Challenges and Risks.

2.1 With respect to benefits on lesson presentation with the use of digital visual and learning tools, the overall mean is 4.42 interpreted as Strongly Agree.

2.2 With respect to the benefits on teaching strategy, the overall mean is 4.17 interpreted as Agree.

2.3 With respect to the opportunity on digital literacy, the overall mean is 4.42 interpreted as Strongly Agree.

2.4 With respect to the opportunity on developing 21st century skills, the overall mean is 4.25 interpreted as Strongly Agree.

2.5 With respect to the challenges on resistance to change, the overall mean is 3.64 interpreted as Agree.

2.6 With respect to the challenges on technical competency, the overall mean is 3.97 interpreted as Agree.

2.7 With respect to the risk on security to information, the overall mean is 3.75 interpreted as agree.

2.8 Withs respect to the risk on student's physical and mental health, the overall mean is 4.22 interpreted as Strongly Agree.

3. The Level of Impact of Digital Visual Learning Tools Transformation on the Organizational Culture of Binogawan in respect to Post Implementation.

3.1 With respect to the impact on post implementation of digital visual learning tools, the overall mean is 4.05 interpreted as Agree.

Conclusions

Based on the finding of this study, the following conclusions are drawn.

1. The transformation of digital visual tools at Binogawan Elementary School is noticeable, but it is primarily restricted to the tools that are frequently utilized.

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2. The teachers fully understand the benefits, opportunities, challenges, and risks associated with implementing digital visual and learning tools.

3. The organizational culture at Binogawan Elementary School has clearly benefited from the implementation of digital visual learning tools.

Recommendations

Based on the results and conclusions of the study, the following recommendations are offered.

1. It is hoped that Binogawan Elementary School will diversify its range of digital visual learning tools and make them more accessible.

2. The school is encouraged to enhance and diversify digital visual learning tools, as teachers understand the implications of using these resources.

3. The schools are encouraged to extend the influence of these tools to the community of Barangay Binogawan and into the homes of their students.

4. For future researchers to conduct parallel studies using the same variables and contexts that address a broader range of respondents.

Acknowledgement

The author would like to express gratitude to Mrs. Lina M. Bianes, the school head of Binogawan Elementary School, for granting permission to conduct this research, as well as to our supportive Seminar and Research Publication instructor, Dr. Janice Dyan G. Quiloña, for her constant guidance and encouragement that contributed to the completion of this paper.

Authors' Biography

Rodito A. Bianes serves as a Technology Consultant and a member of Centrify Privilege Access Management Team at SGV & Co. He holds IT industry certifications such as Identity and Access Manager (CIAM) and in ITIL Foundation Best Practices, along with Civil Service Professional Eligibility. With over 13 years of experience in the IT-BPO sector, he is well-versed in field of Identity and Access Management (IAM), Information Security and Audit Compliance, Data Analytics, and Corporate Metrics Reporting using Advanced Excel. A native of Borongan, Eastern Samar, Philippines where he also finished his primary and secondary education. He completed a 2-Year Computer Technician Course at AMA Computer Learning Center (ACLC) located in Cubao, Quezon City, Philippines. He obtained his Bachelor of Science degree in Business Administration (BSBA), majoring in Management Accounting, from the National College of Business and Arts (NCBA) in Fairview, Quezon City, Philippines. Additionally, he has accumulated 40 units toward a Master in Business Administration (MBA) from Pamantasan ng Lungsod ng Muntilupa (PLMUN), Muntinlupa City, Philippines and has started his first semester with Master in Information Technology (MIT) at Technological University of the Philippines (TUP), in Taft Avenue, Manila, Philippines. Unfortunately, due to the circumstances of the COVID19 pandemic, he was not able to proceed both. Currently, he is in his 3rd semester pursuing Master of Arts in Management (MAM) at Eastern Samar State University (ESSU) Can-avid campus.

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