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Technostress among Boomer Teachers in ICT Integration

Iris A. Lozada[1], Queenie Lyn G. Almerez[2], Amelie E. Trinidad*[3]
[1]Department of Education, Digos City, Philippines
[2,3]Davao del Sur State College, Digos City, Davao del Sur, Philippines

*Corresponding Author Email: amelie.trinidad@dssc.edu.ph

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Abstract. The rapid advancement of information and communication technology (ICT) has significantly transformed teaching and learning environments, often leading to technostress among educators. While existing studies explore ICT integration challenges, limited research focuses on boomer teachers' experiences in managing technostress. This study examines the experiences of boomer teachers in integrating ICT in the classroom, their coping mechanisms, and insights on mitigating technostress. Utilizing a qualitative phenomenological approach, the study involved eight boomer teachers from large public secondary schools in Davao del Sur. Participants were selected through purposive sampling based on specific criteria: (1) belonging to the boomer generation, (2) actively teaching in a public secondary school, (3) integrating ICT in classroom instruction, and (4) willingness to participate in semi-structured interviews. Thematic analysis of the data revealed that boomer teachers face challenges such as technological incompetency, adaptability issues, and unequal access to ICT resources, which hinder their effective use of technology in teaching. However, strategies including collaborative learning, ICT training, and resilience-building helped mitigate technostress. The study highlights the importance of continuous professional development, mentorship programs, and intergenerational collaboration to support boomer teachers in overcoming ICT-related challenges. Furthermore, promoting a culture of lifelong learning and providing institutional support can enhance ICT integration and overall teaching effectiveness. The study recommends further quantitative research and a broader participant base to validate and extend these findings. These insights contribute to developing targeted training programs and policies to reduce technostress and improve digital competence among older educators.

Keywords: Boomer teachers; ICT integration; Phenomenology; Qualitative; Technostress.

1.0 Introduction

Innovation has transformed the education landscape, reshaping how teachers facilitate learning through information and communication technology (ICT). The integration of ICT in the classroom has been widely recognized as an essential tool for enhancing instructional methods and improving student engagement. It has enabled more flexible, interactive, and accessible learning experiences, particularly in digital and distance education (Salazar-Concha et al., 2021). However, while technology offers numerous advantages, its integration into teaching practices has also introduced significant challenges, particularly for educators who may struggle with rapid technological advancements.

One critical challenge is technostress, a phenomenon arising from an individual's inability to cope with technological demands in the workplace. Technostress manifests in various ways, including feelings of anxiety, cognitive overload, and job-related strain due to the continuous need to adapt to new technologies (Coklar et al.,

2017; Tarafdar et al., 2019). Studies indicate that teachers experience increased work exhaustion due to the pressure of integrating modern technology into their instructional methods (Estrada-Munoz et al., 2020; Gemmano, 2023). Furthermore, technostress has been linked to lower job performance and reduced well-being among educators, affecting their ability to effectively deliver lessons (Cahapay & Bangoc II, 2021).

While research has extensively explored the general impact of technostress on educators, there remains a notable gap in understanding its specific effects on older teachers, particularly those belonging to the Baby Boomer generation. Boomer teachers, often characterized by their extensive teaching experience, may face unique challenges in adapting to ICT integration due to differences in digital literacy and comfort with technology compared to younger educators (Player et al., 2017). Studies in Europe and Asia suggest that while technostress can hinder productivity, certain aspects of technological adaptation may also contribute positively to professional growth (Srivastava et al., 2020). However, limited research has examined how boomer teachers in the Philippines navigate technostress, their coping mechanisms, and their perspectives on addressing these challenges.

Given the crucial role of seasoned educators in shaping students' learning experiences, understanding their struggles and strategies for overcoming technostress is essential for developing targeted interventions and support systems. This study aims to fill this gap by exploring the experiences of boomer teachers in integrating ICT into their classrooms, identifying the coping mechanisms they employ to manage technostress, and gathering their insights on mitigating its effects. By shedding light on this issue, the research seeks to inform policies and practices that promote a more inclusive and supportive technological transition for educators of all generations.

2.0 Methodology

2.1 Research Design

This study used phenomenological methodology. Phenomenology is a specific technique in qualitative research that investigates a person's everyday experiences while suspending the researchers' preconceived assumptions about the phenomenon. The method's core purpose is to describe the specific phenomenon's nature (Creswell, 2013). This research method is suited for this study since the researcher sought to learn about the experiences of boomer teachers in terms of using technology in the context of integrating ICT in the classroom.

2.2 Research Locale

The study was conducted in various public secondary schools within the Department of Education Digos City Division in Digos City, Davao del Sur, Philippines. Digos City, the capital of Davao del Sur, is a component city in the Davao Region (Region XI). It is geographically positioned at 6°45′N latitude and 125°21′E longitude, covering an area of approximately 287.10 square kilometers. The city's topography is diverse, comprising coastal areas, flatlands, rolling hills, and mountainous terrain, which contribute to the varied accessibility and learning conditions of schools under the DepEd Digos City Division. The DepEd Digos City Division supervises the city's public elementary and secondary schools, ensuring quality and accessible basic education. Schools within the division vary in size and resources, with some located in urban barangays, benefiting from well-equipped facilities, while others are in rural and upland areas, where students face geographical and logistical challenges in accessing education. Despite these disparities, the division remains committed to enhancing educational opportunities for all learners.

2.3 Research Participants

In this study, eight boomer teachers from big public secondary schools in the Division of Davao del Sur underwent a semi-structured interview. According to Ellis (2016), a sample size between six (6) and twenty (20) for phenomenological research is sufficient. According to Marshall et al. (2013), outstanding qualitative work requires saturation, but there are no available rules or assessments of appropriateness for determining the sample size necessary to accomplish saturation. Therefore, a sample size of eight was enough to conduct this study. The following criteria were used in determining the teacher participants of the study: (1) a boomer teacher; (2) teaching in a big public secondary; (3) integrated information and communication technology in the classroom; and (4) willingness to participate in the interview. However, there was an exclusion for these criteria among the participants, who were boomer teachers who were 60 years old and on leave.

Purposive sampling was employed to choose the participants. Purposive sampling is a non-probability sampling method in which the sample is chosen based on demographic characteristics and the study's objectives. Purposive sampling is selective, critical, or subjective (Crossman, 2020). The participants in this study were those from the Boomer generation of teachers because they had a rich knowledge of shared experiences in instruction and learning developments. They were ready to tackle the challenges of experimenting with various instructional tools, including new technology.

2.4 Research Instrument

This study used a semi-structured interview guide questionnaire as the key source of information. Open-ended, flexible, semi-structured interviews were frequently used. Set questions were asked in a predetermined order, making comparisons between responders simple but potentially constrained (George, 2022). The semi-structured interview questions were employed to ascertain teachers' experiences with technostress, ways to deal with it, and insights to address it when information and communication technology integration was done in the classroom. Furthermore, three (3) professional experts on the ground validated the semi-structured interview guide questionnaire.

2.5 Data Gathering Procedure

The researcher went through the steps of acquiring data to provide a rich data supply. Recommendations from principals who served as boomer teacher participants in the study were sought. The principal gave the name of the available teacher for an interview schedule. After being fully informed, teachers who participated in the study gave their consent and approval. The researcher ensured that the participants fully grasped the goal and procedure of the research. After the participants' consent, eight individuals were interviewed by the researcher. Each participant was given a brief explanation of the purpose of the data collection. Pseudonyms were used to keep the true character of every participant. The researcher developed a strong relationship with the participants to inspire their confidence and trust. The participant was given a thorough explanation of the study's importance and purpose. Furthermore, the researcher utilized a smartphone to capture speech during data collection. This was done to ensure that every event throughout the data collection process was documented. After obtaining approval and cooperation from the participants, voice recordings of the interview were made. The researcher transcribed, then translated verbatim into English and evaluated the data following the interview. All voice recordings were kept confidential even up until the study was done.

The researcher used the Miles and Huberman framework for qualitative data analysis from the study's interviews. The framework had three major components: data reduction, data presentation, and proving and validating findings (Punch, 2005). The researcher uploaded all of the audio recordings to a computer before doing a qualitative data analysis and generated the transcripts. All interview transcripts were translated into English and stored in their original languages. All remarks and words were documented to guarantee that any data recorded for analysis remained original and legitimate. Then, data analysis followed. During the reduction stage, the researcher reduced and arranged the qualitative data received from the interview. Secondly, matrix presentations of the data were shown to conclude the data. Finally, in the conclusion-drawing and verification stage, the researcher analyzed the data to develop conclusions about the study. These preliminary conclusions were validated, and their veracity was assessed using existing transcripts and records.

2.6 Ethical Considerations

This research strictly adhered to ethical guidelines to ensure all participants' rights, safety, and well-being. The following ethical principles were observed:

Informed Consent—Written consent was secured from school administrators, teachers, and parents (for minor participants) prior to participation. Participants were fully informed about the research objectives, procedures, potential risks, and their right to withdraw at any stage.

Confidentiality and Anonymity – To protect participants' identities, pseudonyms or numerical identifiers were used. Any sensitive data was stored securely, with access limited to the researcher.

Voluntary Participation – Participants were not coerced or pressured into joining the study. They had the freedom to decline or withdraw without facing any repercussions.

Minimization of Risk – The study ensured that no participant experienced physical, psychological, or social harm. The interview questions were carefully designed to avoid discomfort and distress.

Approval from Authorities—The DepEd Digos City Division and relevant school heads provided necessary approvals, ensuring compliance with institutional research protocols.

Integrity and Accuracy – The researcher ensured that data were accurately recorded, analyzed, and reported to uphold academic integrity. No manipulation of results was performed, and findings were presented objectively.

3.0 Results and Discussion

Integrating information and communication technology (ICT) in education presents opportunities and challenges for boomer teachers, who often struggle with adapting to rapidly evolving digital tools. Their experiences are categorized into two significant aspects: Challenging Experiences and Positive Experiences. The difficulties include (1) technological incompetency, (2) adaptability issues, (3) inequality in access to ICT resources, and (4) challenges in performing educational tasks. These are juxtaposed with the benefits of ICT integration, which include (1) convenient and easy access to information and (2) improved engagement in classroom instruction. These findings align with the overarching theme of Navigating the Challenges and Benefits of Digital Inclusion for Boomer Teachers.

3.1 Challenging Experiences

This theme encapsulates boomer teachers' obstacles when integrating ICT into their teaching practices. Due to generational differences and limited exposure to digital tools, many boomer teachers experience difficulties that hinder the seamless use of technology in the classroom. The key subthemes under this category include technological incompetency, adaptability issues, inequality in access to ICT resources, and challenges in performing educational tasks.

Technological Incompetency

One of the most pressing challenges experienced by boomer teachers is their struggle with operating ICT tools due to limited exposure and insufficient training. A participant shared,

"During our time, we did not have this technology, so it is challenging for our age group" (VioletDahlia2p4L92-101).

This sentiment underscores the generational gap in digital literacy, where older educators face difficulty keeping pace with technological advancements. Dragano and Lunao (2020) confirmed that adopting new technologies can increase stress levels, particularly in education, where digital tools are now integral to instruction. The lack of structured training programs further compounds this issue, leaving many boomer teachers reliant on self-directed learning or informal peer support. Consequently, professional development programs tailored to the needs of older educators are essential to bridge this digital divide.

Adaptability Issues

Technological proficiency is a crucial factor in effective ICT integration. Many boomer teachers reported feelings of frustration and inadequacy when using digital tools. One participant noted:

"I try my best, but there is a gap in what I want to learn… it is very easy to forget" (DaisyBloom4p12L347-355)

This difficulty in retaining ICT knowledge highlights the cognitive load associated with acquiring new technological skills at a later stage in one's career. Joo et al. (2017) and Maier et al. (2015) support this finding, emphasizing that low technological confidence negatively affects the willingness of educators to integrate ICT in their teaching practices. The inability to troubleshoot technical issues independently further discourages using

digital tools. To address this, educational institutions should provide continuous training and technical support, ensuring that boomer teachers gain the confidence and competence required for seamless ICT integration.

Inequality in Access to ICT Resources

A significant barrier to ICT integration is the unequal distribution of digital resources. Some boomer teachers reported having limited access to gadgets such as laptops, projectors, and interactive whiteboards, making incorporating technology into their lessons challenging. One participant shared:

"It is stressful when the system fails to function, like a laptop, projector, or corrupted files" (IrisBlossom6p21L648)

Murithi and Yoo (2021) highlight that disparities in ICT resources hinder teachers' ability to implement new technology effectively. Schools with insufficient ICT infrastructure exacerbate this issue, making it challenging for boomer teachers to develop digital competencies. To mitigate this challenge, institutions must prioritize equitable access to ICT tools and ensure reliable internet connectivity, fostering an environment conducive to digital learning.

Challenges in Performing Educational Tasks

Boomer teachers frequently encounter obstacles in completing educational tasks due to limited ICT skills. One teacher expressed:

"I fought despite my age… I often fumbled, especially when holding the mouse" (VioletDahlia2p3L77-81).

Such struggles indicate that even essential digital functions can be challenging for teachers unfamiliar with modern technology. Gamboa (2022) similarly identified common ICT-related barriers, including unstable internet connections, power outages, and the complexity of digital platforms. These findings are consistent with the person-environment fit theory, which suggests that stress and resistance to change increase when individuals perceive a mismatch between their capabilities and environmental demands. Addressing this issue requires comprehensive training programs, user-friendly technology, and a supportive learning environment to enhance teachers' digital fluency.

3.2 Positive Experiences

Despite the challenges, many boomer teachers recognize the benefits of ICT in improving their teaching efficiency and student engagement. This theme highlights the advantages of convenient and easy access to information and improved engagement in classroom instruction.

Convenient and Easy Access to Information

ICT tools facilitate quick and easy access to educational resources, enabling teachers to enhance their instructional materials. One participant stated,

"Using technology made my teaching method more successful and enjoyable" (LiliyMagnolia7p24L749-751)

The ability to search for information, create multimedia presentations, and utilize online resources has significantly improved the efficiency of lesson planning.

Das (2019) confirmed that ICT fosters collaboration, creativity, and more profound learning experiences by providing educators with various digital tools. The availability of e-learning platforms and open educational resources further supports teachers in designing more interactive and engaging lessons. This access to technology empowers boomer teachers to develop innovative instructional strategies that cater to diverse learning needs.

Improved Engagement in Classroom Instruction

By leveraging technology, boomer teachers enhanced their teaching methods and made lessons more interactive and engaging. One way in which ICT improves classroom instruction is through improved organization and lesson sequencing. With the help of technology, boomer teachers structured their lessons and activities in a well-

organized manner, ensuring that all competencies were covered. This statement was confirmed by the participant stating:

"It helped to improve my teaching because the lesson is well-arranged when I use ICT, and I will not forget the other competencies that should be accomplished that day. It is already guided, sequenced, and presented, and all the activities are there." (JasmineLily3p7L196-203)

The results revealed that boomer teachers effectively improved teaching methods and increased the interactivity and engagement of the lessons by harnessing technology. Boomer teachers utilized technology to structure the lessons and activities meticulously, ensuring thorough coverage of competencies. This approach proved especially beneficial for students who faced challenges with traditional learning methods while also contributing to a seamless teaching and learning process for boomer teachers.

This finding aligns with the study of Wang et al. (2023), which highlighted that the use of classroom discussion, sharing, and video-making techniques improved student learning interactions. Subsequently, it was important for teachers to use effective classroom management techniques to ensure that the learning environment was conducive to student success, such as clear communication, setting expectations, and creating a positive classroom culture to ensure students were motivated and engaged.

3.3 Nurturing Collaborative Resilience in Empowering Educators for ICT-Enhanced Pedagogies

Through the increasing utilization of technology in the schoolroom, many boomer teachers experienced technostress—stress or anxiety related to using technology. However, these boomer teachers also developed coping mechanisms to deal with this phenomenon. According to Petrakova et al. (2021), the most common behavioral technique teachers used under pressure was to seek out social support. Some of the coping mechanisms adopted by boomer teachers to deal with technostress allowed them to use technology effectively and enhance the learning experience for their students despite the challenges. In this study, there are three coping mechanisms of boomer teachers for technostress: (1) conduct collaborative learning; (2) acquire ICT training; and (3) practice resiliency to adopt new pedagogies, which leads to come up with the general theme of Nurturing Collaborative Resilience in Empowering Educators for ICT-Enhanced Pedagogies.

The overarching theme of Nurturing Collaborative Resilience in Empowering Educators for ICT-Enhanced Pedagogies encompasses teachers' strategies to adapt to digital advancements, including collaborative learning, acquiring ICT training, and practicing resiliency to adopt new pedagogies.

Conduct Collaborative Learning

To effectively utilize ICTs in their teaching, boomer teachers sought help from colleagues, co-teachers, children, and family members who knew technology. Collaborating helped boomer teachers stay motivated and engaged in their teaching practice. These approaches were narrated with the lines of the participant stated, "In my case, I used to request or ask assistance from my young collaborator-teacher to share it with me through a flash drive, downloading it so that I could use it in my class." (RoseLily8p27L861-863)

The results showed how boomer teachers effectively utilized ICTs by seeking help from various sources. Seeking help from colleagues, co-teachers, children, and family members who know technology, boomer teachers received valuable insights, advice, and hands-on assistance, which helped incorporate technology into the lessons. Collaborating with others was crucial in keeping boomer teachers motivated and engaged in teaching practice. By working together and sharing knowledge, boomer teachers benefited from feedback and suggestions from peers, allowing individuals to learn and improve skills.

Moreover, collaborative teaching strategies, such as co-teaching and team teaching, proved effective methods for boomer teachers to enhance their skills and knowledge. These strategies fostered a supportive learning environment where teachers could collaborate to incorporate ICT into their teaching. According to Ansari and Khan (2020), using social networking sites for collective education impacts peer and teacher collaboration and online knowledge-sharing behavior. Therefore, collaborative learning was an important teaching strategy that benefited students and teachers. To effectively integrate ICTs into their teaching, teachers need to be willing to

seek help from others, value collaborative teaching strategies, and continuously improve their skills through training and education. By working together, teachers provide students with a quality education that prepares them for the digital age and most alleviates the stress of manipulating gadgets.

Thus, seeking help from others, embracing collaborative teaching strategies, and participating in ICT training programs played vital roles in empowering boomer teachers to utilize ICTs effectively in their teaching practice. These approaches fostered a supportive learning community and enabled boomer teachers to successfully enhance their skills and incorporate technology into the lessons.

Acquire ICT Training

Many boomer teachers were not adept at utilizing technology in the classrooms because of limited knowledge and were not born with it. Boomer teachers should have adequate training in technology-related topics, especially information technology, to reap the advantages of ICT integration in education. Recognizing the value of ICT integration in the classroom for student engagement and learning was very important. Technology has helped the learning instruction be more interactive, engaging, and practical, increasing student participation and retention. As revealed by one of the participants stating that:

"Teachers need to be trained and be able to use ICT integration in the classroom. If teachers can do so, it may potentially improve students' performance." (JasmineLily3p10L281-286 75)

Boomer teachers must provide comprehensive and ongoing training in technology-related topics to understand the value of ICT integration in the classroom. This training included technical skills and pedagogical strategies for integrating technology effectively into the program. Thus, providing teachers with adequate ICT training is essential for efficiently using technology in instructional settings. By recognizing the significance of ICT integration and providing teachers with the necessary training, the skills developed and the level of education also increased. This was also supported by Lee et al. (2014), who claimed that teachers' ICT abilities increased after obtaining in-service training. The results showed that boomer teachers advocated for comprehensive and ongoing training in technology-related topics to grasp the value of ICT integration. This includes technical skills and pedagogical strategies to effectively incorporate technology into the curriculum.

Therefore, providing boomer teachers with adequate ICT training was essential for effectively implementing technology in the instructional setting. It enhanced student engagement and learning while facilitating information management and accessibility. By recognizing the importance of ICT integration and offering necessary training, boomer teachers' skills were developed, improving education quality.

Practice Resiliency to Adopt New Pedagogies

In modern education, technology integration in the classroom has become increasingly significant. However, not all teachers, especially boomer teachers, were at ease with introducing new pedagogies and technologies into their work. It was critical for boomer teachers, who may have been less digitally aware, to appreciate the obstacles of using technology in class preparation while simultaneously acknowledging its viability. A participant in this study attested with her statement:

"I learned not to give up on myself. We should be adaptable and be able to adjust ourselves to new technology." (IrisBlossom6p22L687-691)

Boomer teachers had to cultivate resilience and accept new pedagogies that included technology in the classroom. Learning something new, seeking help from others, and realizing the limitations of integrating technology while recognizing its viability were all needed to utilize technology effectively in the instructional setting. By doing so, boomer teachers could have presented young ones with a dynamic and engaging learning environment that would have equipped them for success in the digital era.

Therefore, technology has transformed how people live and learn, and it has become an indispensable tool in education. ICT integration has created new chances for boomer instructors and students to work together and learn from one another, regardless of age. Personal perspective, social support, and mentorship connections have

all been demonstrated to have a significant role in helping people cope and adapt to the environment (Park et al., 2017; Pilvera & Trinidad, 2024). By nurturing collaborative resilience and empowering teachers in ICT-enhanced pedagogies, we can provide a more inclusive and dynamic teaching scheme that equips students for the challenges of the 21st century.

3.4 Importance of Lifelong Learning

Technostress was a phenomenon that affected individuals like boomer teachers who experienced stress or anxiety when using technology. In the context of integrating ICT in the classroom, particularly those from the baby boomer generation, technostress is experienced due to the increasing utilization of technology in the instructional setting. These teachers had limited involvement with technological advances and, as a result, felt overwhelmed or anxious when using new digital tools. This study explored some insights from boomer teachers about technostress and how they coped with this phenomenon. We revealed: (1) the importance of teacher training and upgrading skills in ICT integration; and (2) establishing efficient methods for integrating ICTs into classroom instruction. This leads to the general theme - Importance of Lifelong Learning. Lifelong learning is the continuous process of acquiring and applying knowledge and skills throughout an individual's career to remain relevant and practical. For boomer teachers, lifelong learning is essential in adapting to the evolving educational landscape, particularly in ICT integration. These teachers can overcome technostress and enhance their instructional strategies by embracing ongoing professional development and institutional support.

Teacher Training and Skill Upgrading Skills in ICT Integration

Boomer teachers often struggle with ICT integration due to limited exposure, highlighting the need for continuous professional development and institutional support. A participant emphasized:

"Continuous education on ICT utilization in educational development should be conducted in a school setting, fostering teachers' open-mindedness and willingness to train." (RoseIvy8p29L905-908)

Participants stressed that ICT training should encompass technical skills and pedagogical approaches to enhance instruction. By blending traditional teaching methods with modern technology, boomer teachers can create a more dynamic learning environment. Granados (2015) asserted that ICT adoption requires removing outdated tools like chalkboards and pens, demanding retraining to align with contemporary teaching needs.

Thus, training and upskilling in ICT are essential for boomer teachers to stay relevant. With the proper support, they can effectively integrate technology, improving student learning while preserving the value of traditional pedagogy.

Efficient ICT Integration in classroom instruction

Effective ICT integration requires collaboration between teachers and school administration, ensuring access to professional development and institutional support. A participant shared:

"The school should assist teachers struggling with ICT integration. Initially, they may feel exhausted, but they see the benefits once prepared, as ICT reduces workload and enhances teaching outcomes." (JasmineLily3p11L310-320)

Boomer teachers emphasized that ICT success depends on infrastructure availability and teachers' willingness to adapt. Structured training programs and adequate resources should be provided to facilitate this transition. According to Onyema (2020), teachers at all educational levels must continuously update their skills to integrate emerging technologies effectively. Despite challenges, ICT adoption brings benefits such as increased teaching efficiency, improved access to information, and enhanced student engagement. Schools must prioritize ICT integration and provide ongoing skill development, particularly for boomer teachers, to ensure high-quality education.

4.0 Conclusion

Integrating Information and Communication Technology (ICT) in the classroom has presented challenges and opportunities for Boomer teachers. The study highlighted that while digital tools offer enhanced accessibility to information and improved classroom engagement, they also pose significant difficulties, such as technological

incompetency, adaptability issues, inequality in access to ICT resources, and challenges in performing educational tasks. These struggles often result in technostress, leading to anxiety, frustration, and resistance toward digital adaptation. Despite these challenges, boomer teachers demonstrated resilience and a willingness to adapt by employing various coping mechanisms, including collaborative learning, ICT training, and fostering resilience in adopting new pedagogies.

The findings emphasize the necessity for structured professional development programs tailored to the needs of older educators. Continuous ICT training, institutional support, and accessible digital resources are critical in empowering boomer teachers to integrate technology effectively. Furthermore, collaborative efforts among educators, administrators, and policymakers should focus on creating an inclusive and supportive learning environment that acknowledges generational differences in technological literacy.

Ultimately, the study affirms that while technostress remains a prevalent issue among boomer teachers, strategic interventions—such as mentorship programs, peer collaboration, and ongoing training—can mitigate these challenges. By fostering a culture of continuous learning and digital resilience, educational institutions can ensure that all educators, regardless of age, are equipped to navigate the evolving technological landscape in education. This study contributes to the broader discourse on digital inclusion in teaching, emphasizing the importance of adaptive strategies to bridge the digital divide and enhance the quality of education for teachers and students.

5.0 Contributions of Authors

Irish A. Lozada - manuscript writing, data gathering, data analysis, encoding
Queenie Lyn G. Almerez - advising, reviewing, editing
Amelie E. Trinidad – supervising, reviewing and revising manuscript

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7.0 Conflict of Interests

The authors declare that there is no conflict of interest regarding the publication of this article.

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