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A MIXED METHODS INVESTIGATION ON THE TECHNOLOGY PROFICIENCY OF FACULTY IN A LOCAL COLLEGE

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ABSTRACT

This convergent parallel mixed-methods study investigates the lived experiences of faculty members concerning technology proficiency. The participants of the study were the 87 faculty members, who were selected for quantitative data utilizing stratified data sampling. For the qualitative data, there were 14 participants: seven for in-depth interviews and seven for focus group discussions, which were purposefully selected. Results revealed the experiences of the participants: integrating technology in instruction for effective students' engagement, encountering difficulty in the implementation of instruction due to limited internet access and resources, feeling inadequate and lacking proficiency in mastering technology use and facing limited professional association with technology and time constraints. In response to the challenges they have encountered, they deemed the following coping strategies essential: empowering oneself to technology fluency by embracing responsibility, collaboration and adaptability, engaging in diverse learning programs and caring out time for technological skill enhancement and maintaining proficiency in technological use while mastering basic skills. Upon reflecting on their entire experience, they arrived at the following insights: fostering adaptability, innovation and proficiency is essential in tech-driven teaching, collaborative learning enhances professional growth and empowering faculty by facilitating access, support and training for effective technology utilization. Based on the results of the study, it was determined that faculty members always manifest in technology proficiency. The results from the quantitative and qualitative analyses converged when they were corroborated. The results of this study were anticipated to be meaningful and important to the participants, teachers, students, and researchers in educational settings.

KEYWORDS: *Technology Proficiency, Faculty Members, Mixed Methods, Teaching, Technology Integration*

INTRODUCTION

Technology proficiency in this study refers to the effective use of digital tools for tasks, communication, and accessing information. Teachers' proficiency is vital for enhancing education but often hindered by rapid technological advancements and limited training (Elmali et al., 2022).

Internationally, in Thailand, administrators struggle with educational technology and ICT leadership, affecting teaching and management (Capuno et al., 2019). Nationally, during COVID-19, faculty and students at EARIST faced challenges with basic technological skills, resource limitations, and inadequate training (Javie, 2021; Monserate, 2018).

This study emphasizes improving faculty technology proficiency, offering insights for administrators and researchers. Training programs can address skill gaps and enhance teaching effectiveness.

Studies by Catog (2023), Esteban et al. (2023), and Okobia (2023) address technology proficiency but differ by focusing on other groups. This study uniquely explores faculty proficiency using mixed methods for a deeper understanding.

Findings will be shared at conferences and with stakeholders to foster improvements and maximize the study's impact.

Research Questions

1. What is the level of technology proficiency of faculty in a local college in terms of communication technology, integrating technology into instruction, application and accessing information, and professional growth?
2. What are the lived experiences, coping mechanisms and insights of faculty in a local college related to technology proficiency?
3. How do quantitative data corroborate with the qualitative data?

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RESEARCH METHODOLOGY

Research Design

In this study, the researcher utilized a mixed methods design. A mixed methods research design is a procedure for collecting, analyzing, and involves combining both quantitative and qualitative research and methods in a single research study to gain a comprehensive understanding of a phenomenon (Creswell, 2003).

Participants

The participants of the study are those who can best inform, satisfy the research questions and enhance understanding of the phenomenon under study (Kuper et al., 2008). In this study, the key participants were the faculty members of Kapalong College Agriculture, Sciences and Technology. There were 87 participants for the quantitative and 14 participants for the qualitative phase of the study. The criteria for selecting these respondents are as follows: (a) they must be a faculty member at Kapalong College of Agriculture, Sciences and Technology: (b) must be using technology in relation to teaching.

Data Collection

The study employed a convergent parallel mixed-method design (Creswell & Plano Clark, 2007). A validated survey and interview guide were used, with approval secured from KCAST's Vice President for Academic Affairs.Participants completed a Likert scale survey on technology proficiency, while in-depth interviews (Boyce & Neale, 2006) and focus group discussions (Forsyth, 2006) explored their experiences, enriching the findings.

Data Analysis

The analysis combined qualitative and quantitative methods for comprehensive results. Quantitative data were analyzed using descriptive statistics, including mean and standard deviation, to measure faculty members' technology proficiency levels (Creswell & Creswell, 2017). Qualitative data were examined through thematic analysis, identifying patterns and themes from interviews and focus group discussions. Transcriptions were coded and organized into themes capturing faculty members' experiences, coping strategies, and insights. Findings were refined and presented in narratives, tables, or figures.

RESULTS AND DISCUSSION

Table 2. Level of Technology Proficiency of Faculty Members

No	Items	Mean	Descriptive Rating
Communication Technology			
1	Using an email to send information and assignments.	3.95	**High**
2	Reading and replying to messages through electronic device/s.	4.75	**Very High**
3	Employing platforms like google classroom and canvas to post assignments, resources, and engage in discussions.	4.49	**Very High**
4	Conducting virtual lectures and tutorials, through tools like zoom, Microsoft teams and google meet.	4.29	**Very High**
5	Creating a class-specific page or group on platforms like Facebook or Instagram for sharing learning resources, updates and videos related to class content.	4.10	**Very High**
Category Mean		4.32	**Very High**
Integrating Technology into Instruction			
1	Facilitating various technological instructional materials like PowerPoint presentations, infographics, online bulletin board and videos.	4.77	**Very High**
2	Exploring other online materials and access to online resources and databases	4.53	**Very High**
3	Using websites, social media, and assessment tools in my teaching.	4.37	**Very High**
4	Collaborating with my colleagues to understand effective methods of technology integration.	4.37	**Very High**
5	Using a variety of online resources in the design and delivery of my content.	4.49	**Very High**
Category Mean		4.41	**Very High**
Application and Accessing Information			
1	Accessing the worldwide web effectively and determine portals best for teaching.	4.34	**Very High**
2	Using various elements from game in non-game context for transmitting knowledge such popular gamification apps.	3.62	**High**

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3	Designing a rubric for accessing student performance and accessing information through online resources.	4.40	**Very High**
4	Employing storage methods (CD, Zip disks, thumb drives) to archive data and troubleshoot software or hardware	4.14	**High**
5	Using technology to identify reasons for test score performance disparities among students.	4.17	**High**
Category Mean		4.14	**High**
Professional Growth			
1	Joining a professional association that can provide me to access to journals, newsletters, conferences, workshops, and webinars, mentoring or coaching programs that are relevant to my interests, goals, and needs.	4.48	**Very High**
2	Working collaboratively with other teachers with the use of digital technologies.	4.44	**Very High**
3	Using the National Educational Technology Standards, district technology benchmarks, and other applicable resources to develop technology-infused lessons.	4.02	**High**
4	Finding and using samples of best practices using technology in my teaching areas.	4.39	**Very High**
5	Keeping abreast of new teaching strategies that involve technology.	4.55	**Very High**
Category Mean		4.38	**Very High**
Overall Mean		4.33	**Very High**

The study highlights the faculty's very high technology proficiency, enhancing teaching, research, administrative tasks, and student literacy. Faculty effectively use communication technology like emails and digital tools for seamless communication and teaching (Biares, 2021).

Technology integration into instruction is highly valued, with tools like PowerPoint and virtual classrooms widely utilized, demonstrating strong proficiency (Eskici & Cayak, 2023).

Professional growth through workshops and networks further enhances technological competence, benefiting both faculty and institutions (Russell et al., 2021).

Table 3. Lived Experiences of Faculty Members Relative to Technology Proficiency

ISSUES PROBED	CORE IDEAS	CODE/ CATEGORIES	ESSENTIAL THEMES	THEORETICAL SUPPORT
Exploring the Effectiveness and Accessibility of Technological Instructional Materials	• Utilizing PowerPoint presentation reduce time spent on computations and writing • Utilizing technological tools to effectively enhance student engagement • Using PowerPoint presentations to enhance instruction and cater learners with visual preferences • Utilizing PowerPoint presentations which incorporate text and images	Facilitating Various Technological Instructional Materials	Integrating Technology in Instruction for Effective Students' Engagement	Technological, Pedagogical and Content Knowledge (TPACK)
	• Integrating PowerPoint and video presentations enhances engagement in discussions • Integrating technology to enhance instruction and facilitates student learning • Using technology on student learning outcomes compared to traditional teaching methods • Encouraging students to explore the lesson by related videos and online resources • Encouraging students to search online for supplemental materials	Utilizing Technology to Enhance the Overall Teaching Experiences		
	• Utilizing group chats facilitates efficient communication with students	Encourage the Students to Find Study Material through Technology		

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	• Utilizing applications to make online classes	Using Innovative Virtual Classrooms		
Examining the Challenges of Technology Integration on Teacher's Teaching Practices and Classroom Dynamics	• Lacking internet access creates educational disparities • Personalizing experiences of having difficulties in internet connection • Encountering difficulty in related to internet connectivity • Challenging with connection leading to difficulties in accessing necessary information	Complexity in Using Technology Due to Digital Divide	Encountering Difficulty in the Implementation of Instruction due to Limited Internet Access and Resources	Digital Divide Theory
	• Hindering to access educational content cause by HDMI issues and damaged TV • Causing of disruptions in teaching because of HDMI and TV connection • Experiencing challenge due to limited availability of resources and devices • Encountering problem due to issues between HDMI and a laptop	Limited Access to Resources for Technology Integration		
Being Incompetent in Terms of Utilizing Technology	• Adapting on technology is a challenge cause by lack of familiarity with apps or tools • Learning only the basic of technology, it may not fully grasp her full potential	Lack of Foundational Knowledge in Technology	Feeling Inadequate and Lacking Proficiency in Mastering Technology Use	Self-Determination Theory
	• Lacking mastery in using technology • Facing with technical and devices issues is that they lack the expertise needed for trouble shooting • Being not creative, good and feel confident in using technology	Lack of Mastery in Technology Use		
	• Lacking deep diving into functionalities and features of technology • Acknowledging the gaps in technological proficiency	Lack of Proficiency in Technology		
	• Using technology can divert attention away from the lesson and lead to distraction • Using technology can cause distractions during class discussions	Technology as Disturbance		
Exploring the Absence of Technological Training and Workshops for Faculty Members	• Lacking comprehensive in ICT training programs in formal coursework. • Shortcoming of attending trainings on practical technological skills. • Failing to have opportunity to participate in technology-related seminars. • Lacking participation in attending training and seminars about technology • Shortcoming of formal training opportunities for instructors • Lacking time in learning with technology and it is diverted to non-educational applications • Limiting the time available to explore alternative technological possibilities • Lacking time to learn ad handle technology	Lack of Professional Association with Technology Lack of Time Management to Learn on Certain Technologies	Facing Limited Professional Association with Technology and Time Constraints	Sociocultural Theory

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Integrating Technology in Instruction. Integrating technology fosters active student engagement through interactive learning (Koehler & Mishra, 2009).

Challenges Due to Limited Resources. Limited resources and internet access hinder technology integration (Warschauer, 2003).

Inadequacy in Technology Mastery. Educators' lack of mastery and self-efficacy negatively impacts teaching (Deci & Ryan, 1985).

Professional Support and Time Constraints. Limited support and time restrict technology adoption (Vygotsky, 1978).

Table 3.1. Coping Mechanisms of Faculty Members Relative to Technology

ISSUES PROBED	CORE IDEAS	CODE/ CATEGORIES	ESSENTIAL THEMES	THEORETICAL SUPPORT
The Effectiveness of Learning on Technology through Various Strategy to Overcome Difficulties	• Learning by actively seeking out opportunities to discover new skills and tools • Empowering self-directed on online resources to overcome technological challenges • Taking responsibility for own learning by utilizing websites • Becoming independent, learning to develop skills and enrolling in a course	Taking Responsibility for Learning to Enhance Technological Skills	Empowering Oneself to Technology Fluency by Embracing Responsibility, Collaboration and Adaptability	Constructivism and Connectivism Learning Theory
	• Seeking assistance from knowledgeable people by sharing ideas • Assisting and seeking guidance to colleagues with difficulties navigating errors • Seeking guidance and knowledge from peers to overcome challenges. • Overcoming problems through seeking assistance from co-teachers	Collaborating with Colleagues and Co-Teachers to Enhance Proficiency with Technology		
	• Relying on YouTube and tutorials for acquiring knowledge and skills in technology • Using YouTube to watch videos for better understanding of using technology • Utilizing of online research and digital platforms when facing challenges in technology • Using YouTube videos and TikTok to access diverse solutions and expertise • Utilizing YouTube university or searching online for problems in using technology	Engaging in Self-Study through Watching Tutorial Videos to Enhance Understanding		
	• Providing own solutions to have internet connection • Providing own resources to have internet connection • Providing own resources to have internet connection or Home-based internet access strategy	Adaptable and Flexible in Facing Technological Challenges		
Overcoming and Empowering Teacher's Lack of Technological Proficiency	• Facilitating a seminar to emphasize and learn more about technology • Exploring the integration of technology during master's degree • Investing in a short course in technological development of skills • Engaging with specialized training by coordinating different agencies and expertise	Engaging Varied Programs to Enhance Technological Skills	Engaging in Diverse Learning Programs and Caring Out Time for Technological	Sociocultural Theory

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	• Dedicating time to learning more to master technology • Prioritizing on time allocation • with technological tools and application	Making Time for Learning in Technology	Skill Enhancement	
The Importance of Nurturing Essential Skills and Knowledge of Teacher in Technologies	• Maintaining proficiency in technology to engage students and teachers should develop competence in utilizing tools and applications • Emphasizing the essence of being techy and creative in presentations • Lifelong learning should be embraced by teachers with persistence and patient • Emphasizing being persistent fosters improvement for navigating challenges and maximizing technology • Staying well-oriented with the latest technology enhances creativity and efficiency in using certain apps	Essential Skills of Teachers with Technology	Maintaining Proficiency in Technological Use while Mastering Basic Skills	Experiential Learning Theory
	• Mastering the basic is crucial, especially for teachers who struggle to attain mastery in basic of technology • Having basic digital literacy is essential for online classes and utilizing platforms like Google Classroom • Understanding basic computer usage and software applications will empower individuals • Being proficient in basic Microsoft operations is crucial as they are fundamental skills required to adapt to current trends	Knowledge Areas of Teachers with Technology		

Empowering Technology Fluency. Participants improved technology fluency through workshops, courses, and self-directed learning (Piaget, 1964).

Engaging in Learning Programs. Faculty committed to professional development to enhance technological skills (Mahn & John-Steiner, 2012).

Balancing Proficiency and Basic Skills. Educators faced challenges balancing advanced and foundational skills (Kolb, 1984).

Table 3.2.Insights of Faculty Members Regarding their Proficiency with Technology

ISSUES PROBED	CORE IDEAS	CODE/ CATEGORIES	ESSENTIAL THEMES	THEORETICAL SUPPORT
Exploring the Significant of Developing Technological Skills of Faculty Members	• Requiring adaptability in technology to meet the needs of millennials • Ensuring continuous learning and adaptation in the 21st century technological skills • Possessing skills to effectively engage and educate the learners since they are deeply immersed in technology • Integrating technology in teaching to enhance interaction and accessibility for learners	The Significance of Developing Skills in Technology	Fostering Adaptability, Innovations and Proficiency Is Essential in Tech-Driven Teaching	Substitution, Augmentation, Modification, Redefinition (SAMR)
	• Using technology to create teaching methods to cater learning styles of learners • Developing learning and skills to enhance efficiency and proficiency in teaching	Recognizing the Impact of Using Technology in Relation to Teaching		

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Exploring the Effective Methods to Enhance Teacher's Lack of Proficiency with Technology	• Sharing knowledge within educators enhances the impact of new discoveries • Sharing knowledge with colleagues when it comes to navigating new technologies • Valuing casual conversation with peers in discovering new methods • Sharing insights into colleagues from attending seminars can enhance teaching practices • Sharing among colleagues to ensure that everyone benefits from the latest resources that can promote unity • Sharing ideas among instructors for mutual support to have an efficient work environment	Sharing and Imparting of Knowledge to Other Teachers	Collaborative Learning Enhances Professional Growth	Technology Acceptance Model (TAM)
	• Having technology skills to provide support to others facing technological challenges • Supporting peers in using technology by providing guidance to overcome challenges	To Offer Assistance for other Faculty Members		
	• Encouraging individuals to be proactive in seeking knowledge and exploring different aspects of technology • Encouraging the use of applications of technologies to enhance skills effectively • Regarding the problem with technology, the need of educators to master their delivery methods	Method to Enhance the Teachers Proficiency with Technology		
Examining the Needs of Faculty Members in Terms of Necessary Facilities, Resources and Programs to Overcome Challenges Relative to Technology Proficiency	• Bridging the technology gap enables accessibility to high-quality laptops and keep pace with the demands • Providing newer laptop units, especially that their current laptop units are outdated	Facilities in Technology Needed by Faculty Members	Empowering Faculty by Facilitating Access, Support and Training for Effective Technology Utilization	Hierarchy of Needs and Social Development Theory
	• Improving the functionality of devices in rooms and quality of resources available • Provisioning the essential resources such as HDMI, wires and pointers to educational settings • Prioritizing improvements in internet connectivity and computer-access • Ensuring the availability of fully functional devices in educational processes, such as TV and HDMI • Implementing comprehensive upgrades like smart boards and internet access and integration of Learning Management System	Needs of Equity and Accessibility to Resources		
	• Requiring budget or support from the institutions, through the provision of needed resources and seminars • Implementing a program for teachers to expose themselves to technology and provided with the necessary budget and devices	Provide Financial Support for Faculty Members		
	• Implementing a mandatory basic seminar for teachers to ensures adaptation to new trends • Establishing a program that provides opportunities for teachers to attend training sessions			

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	• Advocating of regular workshops facilitated by experts in the field of technology for teachers • Giving of recommendations to CHED of prioritising the technological proficiency among instructors • Implementing a comprehensive support program addressing the specific issues and concerns faced by teachers	Professional Development Opportunities		

Adaptability in Tech-Driven Teaching. Faculty emphasized adaptability and innovation in integrating technology into teaching. The SAMR model (Puentedura, 2010) supports replacing traditional methods with digital tools to enhance practices and create new opportunities. Flexible curricula and digital literacy are key for smooth transitions (Farsawang et al., 2023).

Collaborative Learning for Growth. Collaboration fosters professional growth by sharing ideas and practices. TAM (Davis, 1989) links social interactions to increased technology acceptance. Peer collaboration and hands-on training deepen understanding and integration (Theodorio et al., 2024).

Empowering Faculty Through Support. Faculty need access, support, and training to improve proficiency. Addressing foundational needs promotes growth (Maslow, 1990). Institutions should provide infrastructure, policies, and training to boost confidence and competence (Bowman et al., 2022).

Table 4. Data Integration of the Salient Quantitative and Qualitative Findings

ASPECT OR FOCAL POINT	QUALITATIVE FINDINGS	QUALITATIVE FINDINGS	NATURE OF DATA INTEGRATION	AXIOLOGICAL IMPLICATION
Level of Technology Proficiency of Faculty Members in terms of Communication Technology.	Table 2.1 on Communication Technology item no. 3/ *employing platforms like google classroom and canvas to post assignments, resources and engage in discussions* (M=4.49) which rated as very high.	Table 3.1 on experiences shared by faculty members with the theme *Integrating Technology in Instruction for Effective Students' Engagement* has a code of *Using Innovative Virtual Classrooms* with the core ideas *Utilizing group chats facilitates efficient communication* members using a technological tool to facilitate teaching *with student*	Merging-Converging	Faculty members show the ability of using technology to perform various tasks and use it for communicating their students to engage and deliver their lesson.
Level of Technology Proficiency of Faculty Members in terms of Integrating Technology into Instruction.	Table 2.1 on Integrating Technology into Instruction no. 1/ *facilitating various technological instructional materials like PowerPoint presentations, infographics, online bulletin board and videos* (M=4.77) which rated as very high.	Table 3.1 on experiences shared by faculty members with the theme *Integrating Technology in Instruction for Effective Students' Engagement* has a code of *Facilitating Various Technological Instructional Materials* with the core ideas *Utilizing technological tools like PowerPoint can effectively enhance*	Merging-Converging	The faculty members using a technological tool to facilitate teaching such PowerPoint presentation to present information with visuals, text, and multimedia elements.

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	Table 2.1 on Integrating Technology into Instruction no. 4/ *collaborative with my colleagues to understand effective methods of technology integration* (M=4.37) which rated as very high.	*student engagement and comprehension* Table 3.2 on coping mechanisms shared by faculty members with the theme *Empowering Oneself to Technology Fluency by Embracing Responsibility, Collaboration and Adaptability* has a code of *Collaborating with Colleagues and Co-Teachers to Enhance Proficiency with. Technology* with the core ideas *Seeking assistance from instructor and knowledgeable person as a strategy in collaborative learning to enhance proficiency in adapting to various technological tools through the sharing of ideas and experiences.*		Faculty members held using technology in terms of learning in high regard as it enables them to collaborate and Interact with their peers and instructors to enhance their understanding and application of effective technology integration.
Level of Technology Proficiency of Faculty Members in terms of Application and Accessing Information.	Table 2.1 on Application and Accessing Information no. 1/ *accessing the worldwide web effectively and determine portals best for teaching* (M=4.34) which rated as very high.	Table 3.2 on coping mechanisms shared by faculty members with the theme *Empowering Oneself to Technology Fluency by Embracing Responsibility, Collaboration and Adaptability* has a code of *Taking Responsibility for Learning to Enhance Technological Skills* with the core ideas *Taking responsibility of own learning by finding resources, utilizing websites and relevant content to explore personal interests and deepen understanding.*	Merging-Converging	The faculty members using technology to enhance their learning by utilizing the internet to access vast range of resources online and search for information that they need in learning.
Level of Technology Proficiency of Faculty Members in terms of Professional Growth.	Table 2.1 on Professional Growth no. 1/ *joining a professional association that can provide me to access conferences, workshop and webinars that are relevant to my*	Table 3.2 on coping mechanisms shared by faculty members with the theme *Empowering Oneself to Technology Fluency by Embracing Responsibility, Collaboration and Adaptability* has a code of *Engaging Varied Programs to*	Merging-Converging	The faculty members engage in diverse learning programs that offers access webinars aligned with their interests can enhance their technology skills by providing opportunities for learning, networking, and professional development.

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	interest (M=4.48) which rated as very high.	*Enhance Technological Skills* with the core ideas *Investing in short courses for technological development enhances skills and knowledge*		
	Table 2.1 on Professional Growth no. 2/ *working collaboratively with other teachers with the use of digital technologies* (M=4.44) which rated as very high.	Table 3.2 on coping mechanisms shared by faculty members with *Empowering Oneself to Technology Fluency by Embracing Responsibility, Collaboration and Adaptability* has a code of *Sharing and Imparting of Knowledge to Other Teachers* with the core ideas *Sharing of knowledge with collaboration among colleagues or co-teachers, especially when it comes to navigating new technologies.*		Faculty members are working collaboratively with sharing best practices, resources, tips, tools and exploring with digital technologies that can aid in effective technology integration.
	Table 2.1 on Professional Growth no. 4/ *finding and using samples of best practices using technology in my teaching areas* (M=4.39) which rated as very high	Table 3.2 on coping mechanisms shared by faculty members with the *Empowering Oneself to Technology Fluency by Embracing Responsibility, Collaboration and Adaptability* has a code of *Engaging in Self-Study through Watching Tutorial Videos to Enhance Understanding with* the core ideas *Utilizing YouTube videos and TikTok as a problem-solving strategy to access diverse solutions and expertise by using the resources available online.*		Faculty members continuously enhance their technological skills by the use of technology to search for online resources or platforms and gather information in the internet.

Communication Technology Proficiency. Faculty use tools like email, video conferencing, and learning management systems with varying proficiency. Cabral et al. (2023) emphasize messaging apps for collaboration, while Broll et al. (2008) highlight real-time interactions. Hartman (2021) and Rodrigues et al. (2021) stress email and online postings for enhancing instruction.

Integrating Technology into Instruction. Faculty vary in integrating technology, often using tools like PowerPoint for lessons. Thomson et al. (2019) highlights its role in engagement,

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Anderson & Rivera-Vargas (2020) emphasizes focus and performance, and Jakubek (2023) notes reliance on platforms like Zoom and Google Classroom.

Accessing Information. Faculty demonstrate differing abilities in accessing information. Onyema et al. (2019) highlight digital resources, while Johler (2022) stresses e-books and scholarly articles for expanding knowledge.

Personal Growth through Technology. Faculty develop skills via webinars, workshops, and self-learning. Liu et al. (2024) stresses continuous growth, and Mitchel & Davis (2020) emphasize skill enhancement through regular tech use.

CONCLUDING REMARKS

The study found that faculty members have very high technology proficiency in communication, instructional integration, and professional growth, with high proficiency in application and accessing information.

Qualitative data highlighted themes such as effective student engagement, challenges with internet access, lack of proficiency, and time constraints. Faculty coped by embracing responsibility, collaboration, skill enhancement, and adaptability.

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