School Management Amidst Educational Technology Advancement: School Heads' Realization

Flora E. Neneria

Abstract. This study explored school management amidst educational technology advancement as the school heads' realization. I narrowed down the highlights and lowlights of their perspective, the challenges, and the school heads' coping practices on the challenges that come along the way. To achieve the objectives of the study, I made use of phenomenology. This study's ten (10) participants are from Kapalong East District District, Davao del Norte Division. I used a semi-structured online interview using the coding technique to analyze the data. The study disclosed different themes, such as Data-driven decision-making, Increased efficiency, and Transformational leadership. Another theme was Coping with the challenges of collecting results. Sub-themes were continuous learning and professional development, encouraging a culture of experimentation and innovation, and strategically allocating resources. Schools may well be used to changes daily. Still, when it comes to implementing changes to technology, ways of working, and culture, schools can learn a lot from the change management principles used in industries like tech and business to ensure changes are successful and have a lasting positive impact. Changes need all staff behind them if they're going to work. School heads' experiences as they implement technology in school management have far-reaching implications. It was essential to acknowledge and address the challenges that may arise and provide continuous support for successful technology integration.

1. Introduction

Technology has significantly impacted school management and education and is expected to continue. Some ways technology has advanced school management include data-driven decision-making. Schools can use data to gain insights into student performance, attendance, and resource allocation. One of the most significant impacts of technology is its ability to create personalized learning experiences for students. Enhanced technology can improve communication between teachers, students, parents, and administrators. Technology can remove repetitive tasks and improve system communication. Moreover, technology can enable innovative assessment methods, such as online quizzes, interactive assignments, and digital portfolios. Technology can improve worker productivity for administrative tasks by removing repetitive aspects of complex tasks or improving system communication. Technology in-

tegration in the classroom also has the potential to support important educational goals. Drucker (2019) stated that school direction and management must involve technological advancement to reap the benefits and augment efficiency. Okeke (2019) posited that working with teachers and encouraging them to enhance educational processes is essential in educational management. It also entails harnessing instructors' abilities and potentials and adapting them toward educational goals or, to put it another way, enhanced teaching and learning. Thus, leadership is significant to learning and, as such, is required for better levels of school accomplishment. Moreover, one of the biggest challenges to addressing the problem regarding learning is the availability of technological gadgets and internet connectivity. Some pieces of literature supported this study's argument and saw the needs and challenges of internet connections among students (Aboagye et al., 2021; Chase et al., 2018; Chung et al., 2020a). However, some also have a different perspective on internet connectivity. An inefficient internet facility in a university is not an issue when using the internet (Apuke Iyendo, 2018). Another study also spoke of the importance of enhanced internet connectivity for e-learning, especially in rural areas (Ahmed et al., 2017). Based on another perspective, most respondents in a related study showed readiness for online learning (Muthuprasad et al., 2021). It makes sense that today's classroom should represent our society in our rapidly evolving technology age. The learning process can be given intrinsic meaning by demonstrating real-world technology applications, boosting interest and motivation. Also, these classrooms must meet the needs of all kids. Technology helps to accommodate the requirement for different learning approaches, fostering a sense of community and a fulfilling experience. Today's students learn differently in the Philippines than in the past. Technology is all around them, and access to information is only a click away. Since the Philippines is developing, examining some of the studies on e-learning in developing countries was relevant. A study on e-learning in developing countries presented a framework for developing university e-learning programs (Safaavi, 2008), Gorra and Bhati (2016) provided some guidelines on theoretical and practical e-learning experiences in the specific context of Iran, a developing country like the Philippines. It was suggested that though e-learning can be a very effective tool and efficient framework for learning in developing countries, particularly in rural and remote areas, which are not easily accessible, yet a lot needs to be done to make the technology easily acceptable in developing countries. They suggest that well-organized monitoring and control programs support students and lecturers in using technology, which can help improve the quality of education in developing countries. The study does not address the unintended consequences of using technology in learning. With particular reference to the Philippines, Gamboa's study (2008) discusses the increasing prominence of the internet in the world community and the use of internet-based courses, especially for advanced study, where the student already has a decent grounding in the subject. This especially applies to the study of English. Gamboa added that e-learning only applies to students in the Philippines who know very little English but are ashamed or embarrassed to study in a regular classroom. Although it is advisable for beginning students to study in a natural classroom environment where total immersion is still the most effective way to learn the basics of the language, online classes are becoming more of a logical choice for their anonymity. Furthermore, students can fit their studies into their schedules without traveling to find English-speaking people. These teachers can be brought directly into the student's home or office. While there will always be a place for "analog" classrooms, e-learning would increas-

ingly become a prominent tool for those seeking to better their skills and increase their value on the world market. Similarly, in the Philippines, the pandemic starkly revealed inequalities in digital access and poor Information and Communications Technologies (ICTs) infrastructure, especially in the rural areas. There were many reported cases where learners were relegated to using their mobile phones for online distance learning (Bacolod, 2022). Although these conditions highlight digital divides in the country, education technology (EdTech), if situated in an enabling environment, has proven to address existing educational challenges. Evidence from assessment results shows that using artificial intelligence (AI) that adjusts to students' levels can address different learning backlogs among students (Vandenberg et al., 2021). Education technology can also foster independent learning among learners, which, in the long run, could give them self-satisfaction and rewarding life tools or skill sets (Genimian et al., 2020). The Department of Education (DepEd) of the Philippines, cognizant of the potential of EdTech to make education delivery more effective, has developed and implemented programs and forged partnerships targeting to tap the potential of EdTech (Malipot, 2022). Private organizations, too, have come up with initiatives to add to what has been done by other sectors (Domingo, 2022; Child Hope, 2021; Hani, 2021). Although the launch and start of these programs have been publicized, the analytical details of their implementation are scant. They may require further study to provide relevant inputs in policy discourse. This study provides a comprehensive analysis of education technology issues in the Philippines. In particular, in the local setting of Kapalong District Davao City, the study explores the education challenges to which technology can potentially contribute and the essential conditions that must be met for such a potential to be realized. Technology plays a vital role in teaching and learning. Education should change as quickly as technology in this rapidly changing environment. The adaptability of education to technological changes has been helpful, meaningful, and necessary for human life. Traditionally, the way of communication was through Sharing information, ideas, skills, and the use of a paper-based approach, but now the way of communication has been changed because of the development of digital technology such as computers, mobile, projectors, and social media such as email, internet. The best research was conducted by identifying the difficulties and problems of the study early on and accommodating or eliminating them. The purpose of this study was not only to understand the need and importance of technology in classrooms regarding motivation and inclusion but also to encourage the creation of a ground-up curriculum design based on observations of instruction using technology. Findings from the study would inform a wide variety of audiences.

1.1. Purpose of the Study—This phenomenological study aimed to determine the Challenges and Opportunities in Implementing Technology in School Management; it also sought to find the perceptions of the use of technology in classroom-based instruction and describe the current use of general technology and assistive technology in school management. Students can understand complex concepts by applying abstracts to real-world situations, increasing competence. By adding technology into the classroom, teachers can utilize this technology to differentiate instruction, motivate students, and include all skill levels. Moreover, it reveals the use and management of technology and its effectiveness in schools.

1.2. Research Questions—

(1) What are the perspectives of School heads on the use of technology in school management?

(2) What are the school heads' coping mechanisms for the challenges encountered in using technology in management?

(3) What educational management insights can be drawn from the experiences and challenges of the school?

1.3. Definition of Terms—The following terms were operationally defined to make this study more comprehensive. Technology- applying scientific knowledge for practical purposes, especially in industry. Advances in computer technology.

Management- the process of planning, decision-making, organizing, leading, motivating, and controlling an organization's human resources, financial, physical, and information resources to reach its goals efficiently and effectively. Digital technology: Digital technologies are electronic tools, systems, applications, software, and resources that generate, store, or process data, such as social media, online games, projectors, multimedia, mobile phones, and laptops. Digital learning refers to any learning that uses technology. It can happen across all curriculum learning areas. Information communication technology (ICT) refers to any equipment or software for processing or transmitting digital information that performs diverse general functions whose options can be specified or programmed by its user.

1.4. Significant of the Study—To determine the outcomes of this study and to whom the findings are addressed, the following persons or agencies were the beneficiaries. Department of Education Officials. The DepEd officials, particularly in the Kapalong East District District, Davao del Norte Division, should be more flexible in implementing the technical programs, considering the school's financial status and the learners' current physical and geographical situation. Specific policies may also be created to maximize the learners' participation in the learning process activities as mandated in their curriculum. The findings of this study would benefit the school heads as the participants unravel their thoughts and past experiences in implementing technological advancement activities based on the learners' guardians' interpretations of the activities. The learners in this study would provide a clear idea of how they performed their expected tasks in the convenience of their homes. Future researchers should consider some other aspects of technology not covered in this research. To better compare the phenomenon being explored, other areas of this study may be conducted in other grade levels and districts.

1.5. Theoretical Lens—This study was anchored on the Technology Acceptance Model (TAM), which was introduced by Fred Davis in 1986. posits that two factors determine whether a computer system were accepted by its potential users: perceived usefulness and ease of use. The key feature of this model is its emphasis on the perceptions of the potential user. That is, while the creator of a given technology product may believe it is functional and user-friendly, it would not be accepted by its potential users unless they share those beliefs. It has been one of the most influential models of technology acceptance, with two primary factors influencing an individual's intention to use new technology: perceived ease of use and perceived usefulness. An older adult who perceives digital games as too difficult to play or a waste of time will unlikely want to adopt this technology. In comparison, an older adult who perceives digital

games as providing needed mental stimulation and as easy to learn will be more likely to want to learn how to use digital games. While TAM has been criticized on several grounds, it is a practical general framework. It is consistent with several investigations into the factors influencing older adults' intention to use new technology. According to TAM, technology acceptance by Davis (1989) posited the three-stage process whereby external factors (system design features) trigger cognitive responses (perceived ease of use and perceived usefulness), which, in turn, form an adequate response (attitude toward using technology/intention), influencing use behavior. TAM represents the behavior as the outcome predicted by perceived ease of use, perceived usefulness, and behavioral intention. Perceived ease of use and perceived usefulness capture the expectations of positive behavioral outcomes and the belief that behavior would not be labor-consuming. According to a follow-up study, behavioral intention can be substituted by the attitude toward behavior (Davis, 1993), which is an adequate evaluation of the potential consequences of the behavior (Ajzen, 2011). The higher the affective response, the likelihood that the behavior would occur. The effect of perceived usefulness on actual use can be direct, underscoring the variable's importance in predicting behavior. Although perceived ease of use does not affect user behavior directly, it underpins the effect of perceived usefulness.

The model implies that if an application is expected to be easy to use, it would be considered useful for the user, and it is more likely that this would stimulate the acceptance of the technology. Moreover, the School heads must effectively apply decision-making, planning, organizing, creativity, flexibility, communication, analytical thinking, and evaluation processes to carry out functional processes such as student affairs, personnel affairs, teaching affairs, educational affairs, and management (Şahin, 2023). Being open to learning is one of the most essential characteristics that school administrators should have (Vanblaere Devos, 2016). Being open to learning can be defined as constantly improving oneself and being open to learning. School administrators must learn and use technology. The main reason here is that they can stay up to date in the rapidly changing technological environment of our age and guide students in this field. In this context, technology integration in education emerges as an essential concept. Figure 1 shows the interconnection between the two research themes: the Perspective of school heads as they implemented technology in school management and the Coping mechanisms of the school heads in the use of technology in management. This would result in the common denominator, educational management insights drawn from the school's experiences and challenges.

2. Methodology

This chapter discusses the research design used, the role of the researcher, the research participants, the data collection and analysis, the trustworthiness, and the ethical considerations.

2.1. Philosophical Assumptions—The study's philosophical assumption was a framework for gathering, analyzing, and interpreting data in a specific study area. It provides the context for decisions and conclusions that follow data interpretation. The standard philosophical assumption types are further elaborated below. The researchers utilized a qualitative method using phenomenology to school management amid educational technology advancement as the school heads' realization. According to Badil et al. (2023), Phenomenology was an
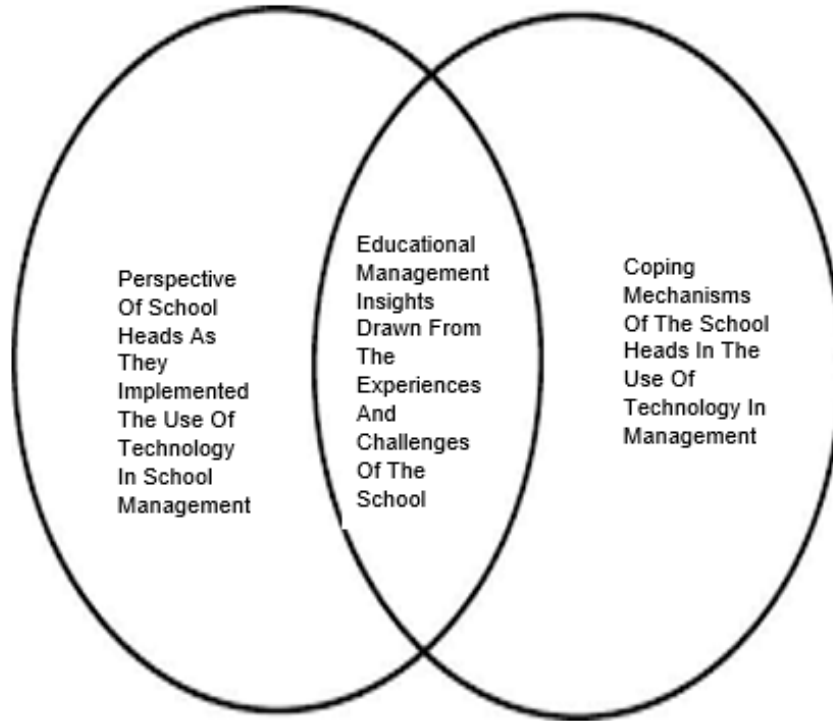
Fig. 1. The Conceptual Framework of the Study

interpretive model inquiry method. It was also best recognized as the science of the essence of perception and consciousness, which explains the concepts and significance of individuals' lived experiences. Moreover, Phenomenology is also defined as a research method that aims to capture the essence of a phenomenon by investigating it from the viewpoint of those who experienced it. Describing the meaning of these experiences was the goal of phenomenology, taking into account what was experienced and how it was experienced (Neubauer et al., 2019). The three most common qualitative methods were participant observation, in-depth interviews, and focus groups. Each method was particularly suited for obtaining a specific type of data. Participant observation was appropriate for collecting data on naturally occurring behaviors in their usual contexts. In-depth Interviews (IDI) were optimal for collecting data on individuals' personal histories, perspectives, and experiences, particularly when exploring sensitive topics. Focus groups effectively elicit data

on a group's cultural norms and generate broad overviews of issues of concern to the cultural groups or subgroups represented. Consequently, qualitative studies may be undertaken to gain insights into people's experiences, behavior, beliefs, attitudes, and motivations. They typically involve observing the population and conducting in-depth interviews or focus group discussions (Corner et al., 2019). Interpretivism seeks to build knowledge by understanding individuals' unique viewpoints and the meaning attached to those viewpoints (Creswell Poth, 2018). Constructivism views knowledge as constructed as people work to make sense of their experience. In this study, I relied on the voices and interpretations of the participants through extensive quotes and themes that reflected their words and provided evidence of different perspectives. The participant's answers to the study were coded and analyzed to build and construct the commonality and discreteness of responses. I ensured that the participants' responses were carefully coded to ensure the reliability of the

result. The researcher upheld the authenticity of the responses and precluded from making personal bias as the study progressed. Epistemology. This refers to the awareness of how knowledge claims were justified by staying as close to the participants as possible during the study to obtain firsthand information. Creswell (2013) stated that, based on epistemological assumptions, the researcher attempted to lessen the distance between himself and the participants. He suggests that, as a researcher, he or she collaborates, spends time in the field with participants, and becomes an "insider." Based on Davidson (2000) and Jones (2011). I would identify phenomenology using thematic analysis as the best means for this type of study. In this regard, individual researchers "hold explicit belief. I assured them that I would establish a close interaction with the participants to gain direct information that would shed light on the knowledge behind the inquiry, particularly on the experiences of school heads as they went through their management activities and functions. Axiology refers to the role of values in research. Creswell (2013) avers that the role of values in a study is significant. Axiology suggests that the researcher openly discusses values that shape the narrative and includes their interpretation in conjunction with participants' interpretation. I uphold the dignity and value of every detail of information obtained from the participants. The researcher understands the personal and value-laden nature of the information gathered from the study. Therefore, I preserve the merit of the participants' answers and carefully interpret them in light of their personal interpretations. Rhetorics. This philosophical assumption stressed that the researcher may write in a literary, informal style using a personal voice, qualitative terms, and limited definitions. In the study context, the researcher used the first person to explain the school heads' experiences and coping mechanisms and thoroughly discussed their responses during the interview. As a researcher, I agree with the post-modernism philosophy of Afzal-os-sadat Hossieni (2011). I believe education aims to teach critical thinking, knowledge production, individual and social identity development, and self-creation. In postmodern education, teachers lead students in discovering new things. They provide opportunities to discuss different subjects in creative ways. In this situation, students learn to listen to other voices. They tolerate others' criticism and try to think critically. They learn to respect other cultures and nationalities. Also, they emphasize cooperative learning, independent learning, and dialectic, critical and verbal methods. It was deducted that postmodernism and creativity are embedded in each other, and we can find the result of this opinion in postmodern education.

2.2. Qualitative Assumptions—The methodology differs from the method since the methodology was a creative and responsive approach to understanding questions and subject matter. In contrast, the method refers to the exact knowledge and procedure (Gerodias, 2013). This study shows the experiences and coping mechanisms of the school head education teachers, specifically those in Kapalong East District District, Davao Del Norte Division. The researcher's drive to know the deeper meaning of their experiences became the basis for qualitative research. It was considered helpful in looking for "meanings and motivations that underlie cultural symbols, personal experiences, and phenomena." By using phenomenology, this need was hoped to be addressed by bringing the stories of the teachers in a manner that, as David (2018) wrote, the themes, symbols, and meaning of the experiences were presented. Phenomenological research was based on two premises. The first was that experience was a

valid, rich, and rewarding source of knowledge; this experience was a source of knowledge and shapes one's behavior. From the definition, human experience was viewed as a cornerstone of knowledge about human phenomena and not an unreliable source. The second premise of phenomenological research is that the everyday world is a valuable and productive source of knowledge. By analyzing how an event occurs daily, we can learn much about ourselves and reap critical insights into its nature (Morrissey Higgs, 2019). By using phenomenology (Elliott Timulak, 2021), which concerns the "what" and the "how," the researcher projected that the teachers' subjective experiences, challenges, and coping mechanisms were explored, and insights were drawn as a basis for possible future

research and policy analysis about this research. The qualitative method of phenomenology provides a theoretical tool for educational research as it allows researchers to engage in flexible activities that can describe and help to understand complex phenomena, such as various aspects of human social experience. This article explains how to apply phenomenological qualitative analysis to educational research. The discussion within this article is relevant to researchers interested in conducting cross-cultural qualitative research and adapting phenomenological investigations to understand students' cross-cultural lived experiences in different social and educational contexts (Alhazmi Kaufmann, 2022).

2.3. Design and Procedure—This study used qualitative research employing phenomenology. Interviews were conducted with individuals with first-hand knowledge of an event, situation, or experience. The interview(s) attempted to answer two broad questions. The data was then read, reread, and culled for phrases and themes that were then grouped to form clusters of meaning (Creswell, 2013). Through this process, the researcher constructed

the universal meaning of the event, situation, or experience and arrived at a more profound understanding of the phenomenon. This study's phenomenology attempts to extract the most pure, untainted data. In some interpretations of the approach, the researcher uses bracketing to document personal experiences with the subject to help remove him or her from the process. One method of bracketing was memoing (Maxwell, 2013).

2.4. Research Participants—The participants in this study were composed of eight (8) informants. The selected informants were Marcos P. Estoque Elementary School, Kapalong East District, Davao Del Norte Division school heads. All the participants were male or female teachers of the same school. All the participants came from all grade levels, regardless of age, sex, and marital status. Qualitative analyses typically require a smaller sample size than quantitative analyses. Qualitative sample sizes should be large enough to obtain feedback for most perceptions. Obtaining most or all of the

perceptions led to saturation. Saturation occurs when more participants are added to the study, which does not result in additional perspectives or information. Glaser and Strauss (1967) recommend the concept of saturation for achieving an appropriate sample size in qualitative studies. For phenomenological studies, Creswell (1998) recommends five (5) to 25 and Morse (1994) suggests at least six (6). The role of the researcher in this study was to attempt to access the thoughts and feelings of study participants. It involves asking informants to talk about things that may be very personal to them.

8

Sometimes, the explored experiences are fresh in the participant's mind, whereas reliving past experiences may be difficult on other occasions. However, the data were being collected, and the researcher's primary responsibility was safeguarding participants and their data. Mechanisms for safeguarding must be clearly articulated to participants and approved by a relevant research ethics review board before the research begins.

2.5. Ethical Considerations—Considering the nature of qualitative studies, the interaction between researchers and participants can be ethically challenging for the former, as they are personally involved in different stages of the study. Therefore, the formulation of specific ethical guidelines in this respect is essential. The relationship and intimacy established between the researchers and participants in qualitative studies can raise a range of ethical concerns, and qualitative researchers face dilemmas such as respect for privacy, establishment of honest and open interactions, and avoiding misrepresentations. In addition, Sanjari (2014) stated that consent has been recognized as an integral part of ethics in research carried out in different fields. For qualitative researchers, it is of the utmost importance to specify in advance which data were collected and how they were to be used. He also stated that informed consent was a prerequisite for all research involving identifiable subjects, except in cases where an ethics committee judges that such consent was not possible and where it was felt that the benefits of the research outweighed the potential harm. A minimum requirement for an interview study should be that written consent be obtained from the participant after they have been informed, verbally and in writing, about the following issues: the purpose and scope of the study, the types of questions that were likely to be asked, the use to which the results were put, the method of anonymization and the extent to which participants' utterances were used in reports. Participants should also be given time to consider their participation and ask the researcher questions. The researcher would follow ethical considerations in this study as part of the qualitative research process. The researcher was responsible for informing the participants entirely about the different aspects of the research in comprehensible language. The needed clarifications include the following issues: the nature of the study, the participants' potential role, the identity of the researcher, the objective of the research, and how the results were published and used. Similarly, this study was submitted to the ethics committee of Rizal Memorial College, a graduate school, for verification and approval.

2.6. Role of the Researcher—I used an Interview Guide Question Tool with sub-questions for this study's in-depth interview and focus group discussion. The tool was used as my guide while interviewing the selected teachers who participated in the recorded in-depth interview via Google Meet, Zoom, or MS Teams and focus group discussion. It aimed to answer the research questions and collect additional inputs that could be used in my study. To address the validity issues of this design, specifically regarding the method, I asked for help from the experts. My interview guide question tool shall be checked and validated by the experts. The sampling used for the selection of my participants was under the suggestions of the expert panels. In this study, I played various roles to attain the study's success. First, I asked for permission to conduct the study, which would start with the school division Superintendent

and then with my study participants. As a researcher, if consented, I recorded the actual interview to achieve the needs of this type of research. The interview aims to better understand teachers' experiences in the new standard way of teaching and learning. The interview would also include how the Department of Education should improve its programs. After gathering the needed data, the researcher transcribed and analyzed everything. However, human instruments were more critical to study in case the quality of this research has to deal with biases and assumptions regarding the persons involved in the research (Greenbank, 2003).

2.7. Data Collection—According to Creswell (2013), an essential step in the process is to find people or places to study and to gain access to and establish rapport with participants so that they can provide good data. A closely interrelated step in the process involves determining a strategy for the purposeful sampling of individuals or sites. Once the inquirer selects the sites or people, decisions need to be made about the most appropriate data collection approaches. To collect this information, the researcher develops protocols or written forms for recording the data, such as interviews or observational protocols. Also, the researcher needs to anticipate issues of data collection, called "field issues," which may be a problem, such as having inadequate data, needing to leave the field or site prematurely, or contributing to lost information. Finally, a qualitative researcher must decide how he or she would store data so that it can easily be found and protected from damage or loss. In this study, there are seven steps in the data collection process. First was the site or individual; the participants were the Kapalong East District, Davao Del Norte Division school heads. Second is access and rapport. The graduate student is given a letter from the Dean of the Graduate School for the superintendent's approval. A letter of permission from the school division Superintendent, the school Principal, and the concerned elementary teachers was prepared for accessible data collection. The third was the purposeful sampling strategy; all participants experienced the phenomenon being studied. Eight (8) informants were selected in this study. The selected physical education teachers were considered the group of individuals who could best inform the researcher about the research problem. They were also considered individuals who have experienced the phenomenon and can facilitate data collection. The fourth is the forms of data, the process of collecting information involved primarily in the Virtual In-Depth Interview (IDI) with the eight (8) informants. The fifth was the recording procedures; a protocol was used in the observation and interviewing procedures. A predesigned form was used to record information collected during an observation or interview. The sixth was the field issues; limited data collection was engaged in this study. The last or the seventh step was the storing of data; Davidson (1996) suggested the use of the database to back up information collected and noting changes for all types of research studies. The COVID 19 Health Protocols. The data was collected during the Corona Virus Pandemic (COVID-19) time; therefore, the collection of data was based on the protocols set by the Inter-Agency Task Force (AITF) standards. It was a task force organized by the executive of the Philippine government to respond to affairs concerning emerging infectious diseases in the Philippines which was convened in January 2020. The Collection of data or the virtual In-Depth Interview (IDI) was conducted following the protocols for Social Distancing, which is one of the mandates of AITF to avoid being contaminated and infected by COVID-19. In this study, the IDI was conducted with utmost care so that

social distancing was followed and that at least 2 meters between persons was made. For some participants who missed the face-to-face social distancing efforts, video calls via messenger, Viber, Zoom, or Google Meet were used to gather data or responses from the participants. The participants also filled out the interview form provided to them and submitted it to the researcher.

2.8. Data Analysis—In this study, all the data collected were carefully examined and thoughtfully analyzed. The researcher first described personal experiences with the phenomenon under study. The researcher began with complete description of her own experience of the phenomenon. This is an attempt to set aside the researcher's personal experiences so that the focus can be directed to the participants. He developed a list of significant statements. He then finds statements about how the individual was experiencing the topic, lists these significant statements as having equal worth, and works to develop a list of nonrepetitive, nonoverlapping statements. The researcher took the significant statements and then grouped them into larger units of information called "meaning units" or themes. He wrote a description of "what" the participants in the study experienced with the phenomenon. Next, he wrote a description of "how" the experience happened. This was called "structural description," and the inquirer reflects on the setting and context in which the phenomenon was experienced. Finally, he wrote a composite description of the phenomenon incorporating both the textural and structural descriptions. This passage is the "essence" of the experience and represents the culminating aspect of a phenomenological study. Thematic Content Analysis. A thematic analysis strives to identify patterns of themes in the interview data. One of the advantages of thematic analysis is that it was a flexible method that can be used both for explorative studies, where the researcher does not have a clear idea of what patterns was being searched for, as well as for more deductive studies, where the researcher

knows precisely what he or she was interested in. No matter which type of study is being done and for what purpose, the most important thing in the analysis is that the researcher respects the data and tries to represent the results of the interview as honestly as possible (Mortensen, 2020). Document analysis. Document analysis was a form of qualitative research that uses a systematic procedure to analyze documentary evidence and answer specific research questions. Similar to other methods of analysis in qualitative research, document analysis requires repeated review, examination, and interpretation of the data in order to gain meaning and empirical knowledge of the construct being studied. Document analysis can be conducted as a stand-alone study or as a component of a larger qualitative or mixed methods study, where it was often used to triangulate findings gathered from another data source (e.g., interview or focus group transcripts, observation, surveys). When used in triangulation, documents can corroborate or refute, elucidate, or expand on findings across other data sources, which helps to guard against bias (Frey, Bruce , 2018). Triangulation of Data. Triangulation means using multiple methods to collect data on the same topic. This was a way of assuring the validity of research through various methods to collect data on the same topic, which involves different types of samples and data collection methods. However, the purpose of triangulation was not necessarily to cross-validate data but to capture different dimensions of the same phenomenon (Kulkarni, Prashant, 2013). Environmental triangulation. Environmental triangulation was limited only to those studies where certain environmental

factors can influence the findings. This type of triangulation uses different settings, locations, and other factors such as time, day, and season in which the study occurred. The idea was to determine which factors influence the information received; these factors are then changed to see if the findings were the same. Validity can be established if the findings remain unaltered under varying environmental factors (Naeem, Saira, 2019). In this study, such triangulation was used considering that the requirement, as mentioned, was the use of environmental triangulation best suits the environment of the research being conducted.

2.9.   Framework of Analysis—The analytical framework adopted for this study is flexible enough to allow the researcher to gather all of the data and then analyze it while undergoing collection. The collected data will then be sifted, charted, and categorized in line with the key topics and themes during the analysis stage. The following stages characterize this procedure: familiarization, coding, searching for themes, reviewing themes, defining and naming themes, and producing a report (Naeem et al., 2023). Familiarization with the data is common to all forms of qualitative analysis. In this form, the researcher immerses themselves in and becomes intimately familiar with their data, reading and re-reading it and noting any initial analytic observations. Coding was also widely applied to many qualitative analysis methods, where it refers to developing concise labels for important data features relevant to the (more general) research question guiding the analysis. Coding was not just a data reduction technique; it was also an analytic process, so codes capture a semantic and conceptual reading of the data. The researcher would code each data item and conclude this stage by collating all their codes and relevant data extracts. Searching for themes was a coherent and meaningful pattern in the data relevant to the research question. The researcher would then conclude this stage by gathering all the coded data relevant to each theme. Reviewing themes. The researcher would reflect on whether the themes tell a convincing and compelling story about the data and begin to define the nature of each theme and the relationship between the themes. Defining and naming themes. The researcher would prepare a detailed analysis of each theme, identifying its 'essence' and constructing a concise, punchy, and informative name for each theme. Producing a Report involves weaving together the analytic narrative and data extracts to tell the reader a coherent and persuasive story about the data.

2.10.   Trustworthiness of the Study—Trustworthiness was all about establishing credibility, transferability, confirmability, and dependability. In a qualitative study, trustworthiness is very important because the research study's results and findings depend on how the researcher conducts it. The trustworthiness of a research study was important in evaluating a study's worth. The concepts of validity and reliability are relatively foreign to qualitative research. Instead of focusing on reliability and validity, qualitative researchers substitute data trustworthiness. Trustworthiness consists of the following components: credibility, transferability, dependability, and conformability (Harts, 2019). Credibility is how confident the qualitative researcher is in the truth of the research study's findings. The researcher in this study believed that honesty in everything you do is essential to attain worthwhile success. The researcher has no derogatory records or administrative issues that ruin her integrity. Lincoln and Guba
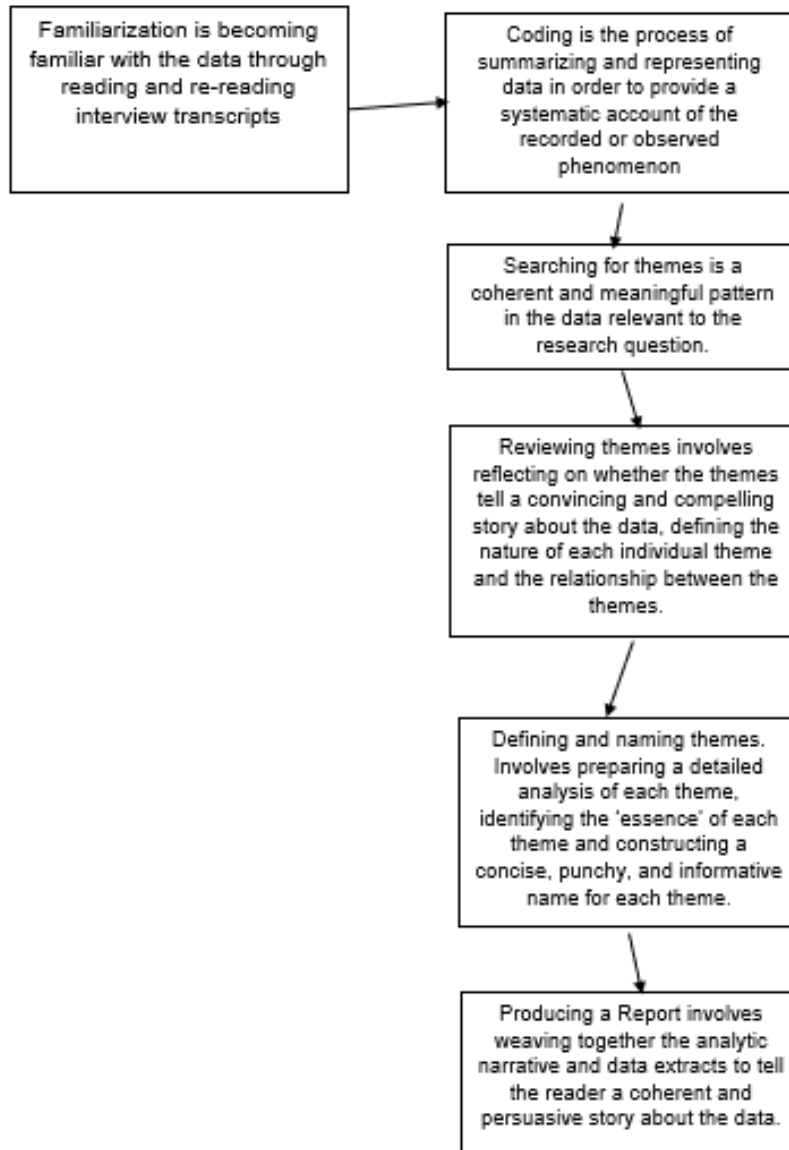
Fig. 2. Analytical Framework of the Study

(2000) state that credibility refers to the idea of internal consistency, where the main issue was "how we ensure rigor in the research process and how we communicate to others that we have done so." Transferability is how the qualitative researcher demonstrates that the research study's findings were applied to other contexts. In this case, "other contexts" can mean similar situations, similar populations, and similar phenomena. The researcher has already studied the effects of using graphic organizers as a strategy for teaching reading comprehension. The use of graphic organizers as a strategy in teaching reading comprehension is effective in the domains of analysis and creation. With this, the researcher was interested in the students' perspective on using this strategy. Gasson (2004) emphasized transferability as the extent to which the reader was able to provide a generalization of the study based on his context and can address the core issue of "how far a researcher may make claims for a general application of the theory." Confirmability was the degree of neutrality in the research study's findings. In other words, this means that the findings are based on participants' responses and not the researcher's potential bias or personal motivations. This involves making sure that researcher bias does not skew the interpretation of what the research participants said to fit a certain narrative. The information used in the audit trail in this situation was thoughtfully recorded by the researcher, which highlights every step of data analysis that was made in order to provide a rationale for the decisions made. This helps establish that the research study's findings accurately portray participants' responses. Gasson (2004) states that confirmability is based on the acknowledgment that research is never objective. Dependability is the extent to which other researchers could repeat the study and ensure consistent findings. In other words, if a person wanted to replicate your study, they should have enough information from your research report to do so and obtain similar findings as your study did. A qualitative researcher can use an inquiry audit to establish dependability, which requires an outside person to review and examine the research process and the data analysis to ensure that the findings are consistent and can be repeated. In this component, using the database is very important in backing up information collected and noting changes for all types of research studies. All the data collected must be properly kept for future use as references. Gasson (2004) states that dependability deals with the core issue that "how a study is conducted should be consistent across time, researchers, and analysis techniques.

3. Results and Discussion

This chapter presents the results generated from analyzing the interview data. It presents themes that emerge from the analysis. Along with the themes are comprehensive discussions that answer the study's objectives. Before I begin my discussion, I would like to establish the symbols I used to present the quotations based on the study participants' responses. Regarding the transcriptions of the interviews, I used T01-T10 as codes to refer to the research participants. The first objective of the study is to uncover the school heads' experiences as they implement technology in school management. The questions gathered substantial actual experiences on school heads' experiences.

3.1.   The Experiences Of School Heads As They Implement Technology In School Management—

3.1.1.   Data-driven decision-making—

Technology enables school heads to collect, analyze, and interpret data related to student performance, attendance, behavior, and other crucial metrics. They can use this data to make informed decisions, identify areas for improvement, and implement targeted interventions to support student success. Based on the statement of T01, data-driven decision-making has helped us identify areas for improvement within our school. For example, by analyzing data on student attendance, we discovered a significant number of absences during a particular period. This prompted us to develop targeted interventions to address the underlying issues and improve student attendance rates. Without access to this data, we would not have been able to identify and address the problem as efficiently. Basically, it's important to note that implementing data-driven decision-making does come with its challenges. One major challenge is ensuring data accuracy and reliability. It's crucial to have reliable data collection systems and processes in place to ensure the integrity of the data we analyze. We have invested time and resources in training our staff on data collection protocols and ensuring that the data is entered accurately and consistently. It means that the statements of T01 and T02 contribute to the development of the school. This corroborates with the study of Aquino et al. (2019) that balance and holistic development of the school should be ensured. According to Abueva et al. (2018), Another challenge we face is effectively communicating the findings and implications of the data to stakeholders, such as teachers, parents, and the broader school community. It's essential to present data in a clear and accessible manner, highlighting its relevance and potential impact. We have found that visualizations and data dashboards are effective tools for conveying complex information in a user-friendly way. Moreover, data-driven decision-making has transformed our school management practices. It has empowered us to make evidence-

based decisions, improve student outcomes, and foster a collaborative and data-informed culture among staff members. It is an ongoing process, and we continuously strive to refine our data collection and analysis methods to ensure that we are utilizing data to its fullest potential, (Alicia 2019). Educational leaders may sustain effective data-driven decision-making by adopting or developing decision-making tools that provide visual frames that facilitate distributive leadership and share decision-making powers. The research literature suggested the following three decision-making models developed by Mid-continent Research for Education and Learning, The Research and Development Corporation, and Flowers Carpenter for educational leaders as decision-making frameworks to help drive a decision-making process (Lange et al., 2012). The data-driven decision-making framework developed by (Jack 2003) calls for educators to develop strategies for collaboration concerning the use of data and calls for the establishment of a school leadership team and data team to facilitate "a respectful, trusting culture in which data can be collected, analyzed, and used constructively to increase student achievement. It provides a sustainability framework for what an effective school data-driven decision-making process should look like through the lens of five processes. The RAND study offers a conceptual framework that addresses the need for educators to seek multiple types of data, such as input data, that shows school expenditures or the demographics of the student population, process data, displaying data on financial operations or the quality of instruction; outcome data, depicting dropout rates or student test scores; and satisfaction data from the opinions of teachers, students, parents, or the community. Flowers and Carpenter(2009), found that many educators lack the statistical skills to identify and analyze data for data-driven decision-making correctly and offered a five-step process to help guide educators in identi-

15

fying and analyzing school data: review your school improvement plan to identify goals and your primary focus, determine how the data will be used, reduce your total amount of data by identifying only the relevant data to support your school improvement plan, objectively examine and discuss the data with teachers, staff, and other stakeholders, and set goals, evaluate the progress of your decision-making and return to step three for continuous improvement. U.S. educators strive to prepare students to meet the demands and expectations of an ever-evolving world and a globalized 21st-century community. Educator accountability has increased under the Elementary and Secondary Education Act, the No Child Left Behind Act, and the Every Student Succeeds Act. Teachers and principals are expected to make informed instructional decisions using various data, and state officials must set goals for all schools under their jurisdiction and provide intervention plans for schools needing improvement. In an age of accountability and school reform, the call to improve the quality of education so that all students in America are taught to high academic standards that will prepare them to succeed in college and careers is prevalent (ESSA, 2015). Teachers and principals must understand the fundamental nature of data-driven decision-making (DDDM) and remain committed to its values. Teachers and administrators may feel they understand the importance of using data to make informed educational decisions; however, effective implementation remains challenging even under the best conditions, in the best schools, and with the best teachers. The NCLB Act 2001 measured student learning and achievement, relying heavily on specific summative standardized testing data (Park Datnow, 2009). The NCLB Act

focused on meeting adequate yearly progress (AYP) and avoiding punitive actions due to low performance. Accountability for educators was limited to data that reflected compliance, with limited impact on improving teaching and learning (Mandinach, 2009); thus, a large disconnect was produced between the data used to demonstrate compliance and the data designed to inform teaching practices (Smith, 2009). The NCLB Act increased teacher accountability; However, the act failed to help educators understand how to use vital information to make gains with individual students over time. Educators' and policymakers' recognition of the NCLB Act's strict mandates initiated a shift, resulting in the Obama administration's adoption of the ESSA. The ESSA upholds that all students—regardless of background, location, or socioeconomic standing—should receive an education that is connected to high standards and measured by statewide assessments designed to measure students' progress toward those standards (ESSA, 2015). The NCLB Act's strict policies have resulted in state officials providing rigorous plans to close the achievement gap and increase the quality of instruction, equity, and learning outcomes. This paradigm shift transferred the focus from only using data to hold educators accountable to prompting educators to engage in a continuous cycle of improvement using multiple sources of data (Mandinach, 2012). Paradigm shifts are complex and require that educators maintain a mindset that can be cultivated and redefined over time (Fullan, 2001). This change in thinking is paramount if educators implement DDDM practices into their daily work, thus influencing the learning outcomes of all students.

3.1.2. Increased efficiency—Implementing technology in school management has significantly increased efficiency in our day-to-day operations. We have witnessed several positive

changes that have streamlined administrative processes and allowed us to focus more on supporting our students and staff. The statement of T05. Financial management has also been

streamlined through technology. We have implemented accounting software that automates budgeting, expense tracking, and financial reporting processes. This has made financial management more efficient and transparent, as we can generate real-time financial reports and easily track expenditures against the budget. It has also simplified the auditing process and improved our overall financial planning and decision-making. Based on the statements of T06, technology has allowed us to provide online platforms and resources for students and parents, such as learning management systems and parent portals. This has enabled easy access to educational materials, assignments, grades, and other important information. Students can submit assignments online, and parents can stay updated on their child's progress, reducing the need for physical paperwork and back-and-forth communication. This was testified by T07. Of course, implementing technology does come with its own set of challenges, such as initial setup, staff training, and ensuring equitable access for all students. However, the benefits we have gained

in terms of increased efficiency and productivity far outweigh these challenges. Technology has transformed our school management practices, enabling us to allocate our time and resources more effectively, ultimately benefiting our students and creating a more streamlined and productive learning environment. Schools, districts, and states are obviously under great pressure to improve student performance. Increased scrutiny by state legislatures, the media, businesses, and special interest groups has made school improvement and student achievement a top priority. In 2001, the federal government expanded its role in public education with new legislation motivating annual student performance testing, teacher improvement programs, and a plan to identify underperforming schools. It is now even more urgent that Texas school officials address the weaknesses of their present instructional programs and adequately prepare students for the new educational requirements. Given the complexity of educational systems, many researchers posit that using systems strategies to address educational needs.

3.1.3. Transformational Leadership—Implementing technology in school management requires strong leadership from school heads. They need to inspire and motivate staff, students, and parents to embrace technology and adapt to new ways of working. School heads serve as role models for technology integration and encourage innovative approaches to teaching and learning. Transformational leadership has had a significant impact on our school management practices. It has allowed us to inspire and empower our staff, foster a culture of innovation, and drive positive change within our school community. This means that as a transformational leader, I have prioritized the development of our staff. I believe in investing in their professional growth and providing them with the tools and skills they need to excel in their roles. We have implemented professional

development programs, coaching and mentoring opportunities, and collaboration platforms to facilitate knowledge sharing and learning. This has not only enhanced the capabilities of our staff but has also fostered a culture of continuous learning and improvement. Additionally, transformational leadership has enabled us to navigate change effectively. In today's rapidly evolving educational landscape, it is crucial to be adaptable and embrace new approaches. As a transformational leader, I have facilitated the implementation of technological advancements, changes in curriculum, and shifts in instructional practices. By promoting a growth mindset and providing support during times of change, we have successfully managed transitions and ensured the smooth implementation of new initiatives. Overall, transformational leadership has been instrumental in shaping our school

management practices. It has allowed us to inspire and empower our staff, foster a culture of innovation and collaboration, and drive positive change within our school community. By leading with a clear vision, building strong relationships, promoting innovation, investing in staff development, and effectively managing change, we have created an environment that promotes excellence and supports the success of our students. In many ways, the successful integration of theory and practice is exemplary in transformational leadership, given its capacity to foster selfless commitment toward a collective cause irrespective of critical differences between the stakeholders and the cause being served. The transferable currency or embodied capital of transformational leadership, in essence, demonstrates how educational leaders go beyond the bounded organizational context and extends into the wider social context within which schools are located and from which our students come. (Shields, 2006) Current accountability policies place responsibility for students' learning on building principals and to a lesser degree on teachers. These policies suggest principals and teachers work collaboratively, their progress is usually judged by student achievement on standardized tests, and the means to bring about collaboration is uncertain (Printy, Marks, Bowers (2009) Most quantitative studies conclude that principals exert influence on student achievement through teachers and school culture; principals establish conditions so that teachers make the direct effort toward improving student outcomes (Marzano, Waters, McNulty, 2005). Hoy and Miskel (2005) state school leadership and traditional (transactional) models of leadership inhibit the capacity for change, while transformational leadership uses resources and relationships as a successful model for educational leaders. Transformational leadership is defined as a social process in which a member or members of a group or organization influence the interpretation of internal and external events,

the choice of goals or desired outcomes, the organization of work activities, the individual motivation and abilities, the power relations, and the shared orientations. Fundamental assumptions of transactional leadership theorize leadership as an organizational function which is both rational and technical in its conception and projection (Hoy Miskel, 2005; Shields, 2006; Cline Necochea, 2000; Fullan, 1999). Specifically, Day (2000) indicates how "power with versus power over" becomes a challenge for top-down approaches of leadership. This thought process does not allow for the impact of organizational or institutional factors upon individual attainment or performance outcomes. Other fundamental assumptions of traditional leadership focus on inherited values and human nature (Gorton Alston, 2009; Fairholm, 2000). These assumptions emphasize leadership driven by personality and not the responsibilities of the position. This leads to the question about leadership practices for the 21st century. What is the leader's role? How should 21st century schools look? The role of the 21st century schools is to prepare students holistically in cognitive, affective, and social ways to meet societal demands in their future (Helm et al., 2010; Rotherham 4 Willingham, 2009; Manthey, 2008; Hardy, 2007). With a thematic, holistic approach to achieve desired outcomes, Bassett (2005) sees future schools as espousing a leadership vision for proficiency, fluency, multicultural literacy, and high-quality performance for students in various areas. He reports proficiency is represented in the type of curriculum; fluency is represented in areas beyond technical competencies into the non-technical areas of leadership, decision-making, and ethics; multicultural literacy is inclusive of those individuals who are familiar with the history and experiences of diverse groups; and high-quality performance involves a commitment to extracurricular activities. Figure 3 shows the emerging themes from the school heads' experiences with tech-
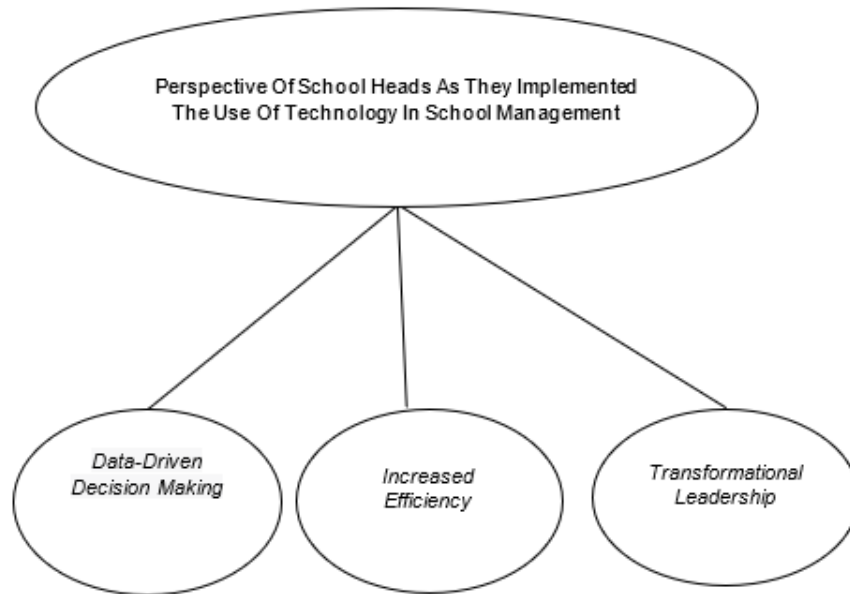
Fig. 3. Perspective Of School Heads As They Implemented The Use Of Technology In School Management

nology in school management. According to the school heads, the first theme that emerged was Data-driven decision-making. Data-driven decision-making has facilitated a more collaborative approach among staff members. Sharing data and discussing its implications has fostered a culture of teamwork and collective responsibility. It has encouraged open dialogue and the sharing of best practices, leading to more effective instructional strategies and interventions. The second theme that emerged was increased efficiency. This has eliminated scheduling conflicts and improved coordination among various departments. Additionally, it can easily track and manage our resources, such as textbooks, equipment, and facilities, using digital inventory systems.

3.2.   School Heads' Coping With The Challenges—Coping mechanisms related to continuous learning and professional development are vital for school heads in addressing the challenges encountered in using technology in management. Here are some common coping mechanisms employed by school heads in this regard.

3.2.1.   Continuous learning and professional development. —School heads recognize the importance of staying updated with technological advancements and educational trends. To enhance their knowledge and skills related to technology integration, they engage in continuous learning and professional development activities, including attending workshops, conferences, webinars, and relevant training programs. Based on the respondents' answers, School heads foster a culture of continuous learning within their schools. They encourage and support their staff in engaging in professional development activities related to technology integration. This may involve providing time and resources for staff to attend training sessions or

organizing in-house professional development sessions where staff can share their knowledge and experiences. Seeking feedback and reflection: School heads regularly seek feedback from their staff, students, and parents regarding the use of technology in school management. They create avenues for open dialogue and reflection, allowing stakeholders to express their concerns, suggestions, and experiences. By actively listening and reflecting on feedback, school heads can identify areas of improvement, address challenges, and make informed decisions regarding technology integration. Building a support network: School heads establish connections and relationships with other school leaders who successfully implement technology in their management practices. They collaborate and share experiences, challenges, and strategies for coping with technology-related issues. A support network provides a platform for sharing knowledge, seeking advice, and finding support during challenging times. Modeling continuous learning: School heads lead by example and demonstrate their commitment to continuous learning and professional development. They engage in ongoing learning and share their experiences with their staff, emphasizing the importance of staying updated and continuously improving their technological skills. School heads modeling a learning mindset inspire their staff to embrace professional development and overcome challenges. These coping mechanisms related to continuous learning and professional development enable school heads to enhance their technological skills, stay current with advancements, and effectively address challenges encountered in the use of technology in management. By fostering a culture of learning and collaboration, school heads empower their staff and create an environment conducive to successful technology integration."

3.2.2. Encouraging a culture of experimentation and innovation—School heads foster an environment where experimentation and innovation are valued and encouraged. They create a safe space for staff to explore new technologies and approaches, recognizing that some experimentation may involve failures or setbacks. By embracing a growth mindset and supporting risk-taking, school heads promote a culture of continuous improvement and resilience. Coping mechanisms related to encouraging a culture of experimentation and innovation in the use of technology in management are crucial for school heads. With these responses, School heads are said to celebrate and recognize the innovative efforts of their staff members. They acknowledge and reward teachers who demonstrate creativity and successfully implement innovative ideas in technology integration. By highlighting and appreciating innovative practices, school heads reinforce a culture that encourages experimentation and motivates staff to overcome challenges associated with innovative approaches. Encouraging reflective practice and continuous improvement: School heads promote reflective practice among their staff members by encouraging them to analyze and reflect on the outcomes of their experimentation and innovation efforts. Through regular reflection and evaluation, teachers can identify strengths, areas for improvement, and solutions to challenges. School heads facilitate a cycle of continuous improvement by providing feedback, supporting reflective practices, and implementing adjustments based on the lessons learned. Building partnerships with external organizations: School heads actively seek partnerships with external organizations, such as educational technology companies or research institutions. These partnerships can provide access to expertise, resources, and innovative solutions. Collaborating with external organizations allows

school heads to overcome challenges by leveraging the knowledge and experiences of experts in the field of educational technology. Developing a long-term vision and strategic planning: School heads develop a long-term vision and strategic plan for technology integration. They set clear goals and objectives, outlining how experimentation and innovation fit into the broader vision of the school. By having a well-defined plan, school heads can guide the experimentation process, anticipate challenges, and allocate

resources effectively. By employing these coping mechanisms, school heads can effectively address the challenges encountered in encouraging a culture of experimentation and innovation in the use of technology in school management. By creating supportive environments, providing resources and professional development, promoting collaboration, and celebrating innovation, school heads foster a culture of experimentation and innovation that successfully integrates technology into their schools."

3.2.3. Allocating resources strategically— School heads prioritize the allocation of resources, such as funding and staff, to support the effective use of technology in school management. They assess their technological needs, conduct cost-benefit analyses, and make informed decisions regarding resource allocation. By strategically investing resources, school heads can minimize challenges related to budget constraints or inadequate staffing. Coping mechanisms related to allocating resources strategically in using technology in management are essential for school heads. The respondents' answers say, "Seeking external funding opportunities." School heads proactively seek external funding opportunities to supplement their technology budget. They explore grants, partnerships, sponsorships, and community collaborations to secure additional resources for technology integration. School heads can overcome financial challenges by leveraging external funding sources and strategically allocating resources to address technology-related needs. Engaging in cost-benefit analysis: School heads use thorough cost-benefit analyses to evaluate the potential return on investment for various technology solutions. They assess initial costs, maintenance and support requirements, scalability, and long-term sustainability. By conducting cost-benefit analyses, school heads make informed decisions about resource allo-

cation, ensuring that investments in technology yield the desired outcomes and mitigate challenges effectively. Building partnerships with technology providers: School heads establish partnerships with technology providers, vendors, or educational technology companies. These partnerships can provide access to discounted pricing, specialized support, or customized solutions. By collaborating with technology providers, school heads can optimize resource allocation and address challenges by leveraging the expertise and resources offered by these partners. Investing in professional development: School heads recognize the importance of investing in professional development for staff members to maximize the effective use of allocated resources. They allocate resources for training programs, workshops, and coaching to enhance the technological skills and pedagogical knowledge of teachers. By investing in professional development, school heads ensure that resources are used optimally and that staff can effectively utilize technology to address challenges. Monitoring and evaluating resource utilization: School heads establish mechanisms to monitor and evaluate the utilization of allocated resources. They regularly assess the effectiveness of technology implementation, gather feedback from staff and students, and review data on the impact of technology on teaching and learning outcomes. By monitoring and evaluating re-
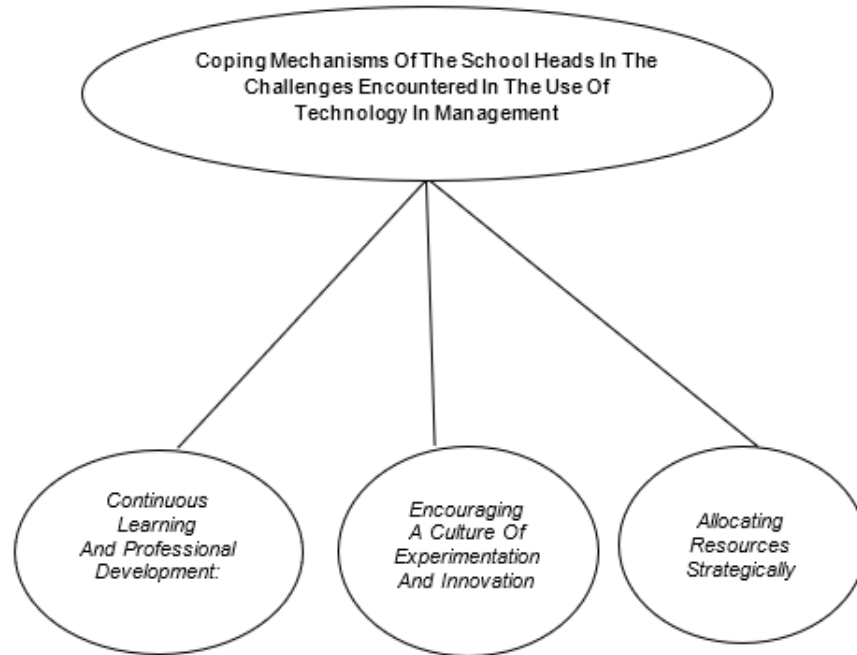
Fig. 4. Coping Mechanisms Of The School Heads In The Challenges Encountered In The Use Of Technology In Management

source utilization, school heads can identify any challenges or areas of improvement and make necessary adjustments to optimize resource allocation. By employing these coping mechanisms, school heads can effectively address the challenges in strategically allocating resources for using technology in school management. By conducting needs assessments, developing budgets, prioritizing resource allocation, seeking external funding, engaging in cost-benefit analyses, building partnerships, investing in professional development, and monitoring resource utilization, school heads ensure that resources are allocated wisely and effectively to overcome challenges and support technology integration." Figure 4 shows the emerging themes of the cop-

ing mechanisms of the school heads in the challenges encountered in the use of technology in management. The first theme that emerged was continuous learning and professional development. They engage in continuous learning and professional development activities to enhance their knowledge and skills related to technology integration. This includes attending workshops, conferences, and webinars, and participating in relevant training programs. The second emerging theme is encouraging a future of experimentation and innovation. By highlighting and appreciating innovative practices, school heads reinforce a culture that encourages experimentation and motivates staff to overcome challenges.

3.3. Insights Drawn from the Findings of the Study—School heads' experiences as they implement technology in school management provide valuable insights that can inform best practices and strategies. Here are some key insights derived from their experiences: Technology is a means, not an end: School heads understand that technology should serve as a tool to support and enhance teaching, learning, and school management processes. It is important to align technology integration with the school's overall goals and vision. Technol-

ogy should be purposefully selected and implemented to address specific needs, improve efficiency, and enhance educational outcomes. Effective leadership is crucial. School heads play a vital role in driving successful technology integration. They provide visionary leadership, set clear goals, and create a supportive environment for innovation. They foster a culture of collaboration, provide resources and professional development opportunities, and ensure that staff members have the necessary skills and support to use technology effectively. Strong leadership is essential to overcoming challenges and maximizing the benefits of technology integration. Professional development is essential: School heads recognize the importance of ongoing professional development for themselves and their staff members. They invest in training and support to build technological skills, pedagogical knowledge, and effective instructional practices. Professional development should be tailored to the specific needs of teachers and staff, providing them with the confidence and competence to integrate technology effectively into their classrooms and daily operations. Change management is critical: Implementing technology in school management requires effective change management strategies. School heads understand the importance of involving stakeholders, including teachers, students, parents, and the wider community, in the process. They communicate the purpose and benefits of technology integration, address concerns and resistance, and provide opportunities for input and collaboration. Change management ensures a smooth transition and increases buy-in from all stakeholders. Data-driven decision making is key: Technology provides school heads with access to vast amounts of data. They use data analytics and reporting tools to inform decision-making processes, monitor progress, and evaluate the impact of technology integration. Data-driven decision making helps school heads identify areas of improvement, track student performance, and allocate resources effectively. Collaboration and networking are valuable: School heads actively seek opportunities to collaborate with other educators, both within their school and beyond. They participate in professional learning communities, attend conferences, and engage in networking activities. Collaboration allows school heads to learn from others, share best practices, and gain insights into effective strategies for technology integration. Flexibility and adaptability are essential: Technology is constantly evolving, and school heads understand the need to be flexible and adaptable. They embrace emerging technologies, stay updated on trends and research, and are willing to try new approaches. Flexibility allows school heads to respond to challenges, seize opportunities, and continuously improve technology integration efforts. Engaging stakeholders promotes success: School heads recognize the importance of engaging stakeholders in the technology integration process. They involve teachers, students, parents, and the wider community in decision making, seek feedback, and create opportunities for collaboration. Engaging stakeholders fosters a sense of ownership, builds support, and ensures that technology initiatives align with the needs and values of the school community. By reflecting on these insights from the experiences of school heads, educational institutions can develop effective strategies, policies, and practices for implementing technology in school management. These insights highlight the importance of strong leadership, professional development, effective change management, data-driven decision making, collaboration, flexibility, and stakeholder engagement in driving successful technology integration efforts.

4. Implications And Future Directions

This chapter presented a brief overview of the study, followed by implications based on its findings. This study examined school management amid educational technology advancement as school heads' realization. The data gathered were analyzed through thematic analysis. In the first objective, the following themes were revealed.

4.1. Findings—The first theme that emerged was Data-driven decision-making. Data-driven decision making helps school heads identify areas of improvement, track student performance, and allocate resources effectively. The second theme was increased efficiency in data management. By digitizing our records and using technology-based systems, they have eliminated the need for manual paperwork and reduced the chances of errors. Tasks such as attendance tracking, grading, and generating reports have become much faster and more accurate. We no longer have to spend hours sorting through paperwork, which has freed up time for other essential responsibilities. The third theme was transformational leadership, which involves encouraging innovation and creativity. They have promoted a continuous improvement culture and empowered our staff to think outside the box and take risks. By providing them with the necessary resources, support, and autonomy, they have seen innovative ideas emerge, leading to the implementation of new teaching strategies, programs, and initiatives. This has created a dynamic and forward-thinking learning environment for our students. The second objective was to discover the coping practices of the school heads. The first theme that emerged was continuous learning and professional development. It was indeed true that nowadays, being updated is a must not only in educational attainment but also in technology and immersion in artificial intelligence. The second emerging theme was encouraging a culture of experimentation and innovation. These cultivate resilience and adaptability by maintaining a positive attitude, staying flexible, and embracing a problem-solving mindset. They view challenges as opportunities for growth and learning and adjust their strategies and approaches when faced with setbacks or unexpected obstacles. The third emerging theme was allocating resources strategically. This was one consideration if changes, innovation, and transformation would occur. Thus, this would also provide opportunities to grow and explore more.

4.2. Implications—The experiences of school heads as they implement the use of technology in school management have several implications. Here were some key implications of their experiences: Enhanced efficiency and productivity: Implementing technology in school management can increase efficiency and productivity. School heads who successfully integrate technology can streamline administrative tasks, automate processes, and improve communication and collaboration among staff members. This, in turn, frees up time and resources that can be allocated to other important aspects of school management, ultimately enhancing overall efficiency and productivity. Improved decision-making and data-driven insights: Technology provides school heads access to real-time data and analytics, enabling them to make informed decisions. By leveraging technology tools and systems, school heads can gather and analyze data related to student performance, attendance, and behavior, as well as financial and operational aspects of the school. These data-driven insights help

school heads identify areas of improvement, make evidence-based decisions, and implement targeted interventions to enhance student outcomes and school performance. Enhanced communication and stakeholder engagement: Technology facilitates improved communication and engagement with various stakeholders, including teachers, students, parents, and the wider community. School heads can leverage technology platforms like learning management systems, online portals, and social media to share information, provide updates, and engage in two-way communication. This strengthens the relationship between the school and its stakeholders, promotes transparency, and fosters a sense of community and involvement in the school's management processes. Personalized and differentiated learning experiences: Technology integration allows for personalized and differentiated learning experiences for students. School heads can implement learning management systems, educational apps, and adaptive learning platforms to cater to diverse student needs and provide individualized instruction. This personalized approach can improve student engagement, motivation, and academic achievement. Professional growth and development: Implementing technology in school management provides professional growth and development opportunities for school heads. School heads can enhance their skills and knowledge by continuously learning and exploring new technologies. They can also take on leadership roles by guiding their staff members in technology integration and fostering a professional growth and development culture throughout the school. Challenges and the need for ongoing support: Implementing technology in school management has challenges. School heads may face resistance from staff members, encounter technical issues, or struggle with selecting and implementing appropriate technologies. To address these challenges effectively, school heads must seek ongoing support, professional development, and resources. Collaboration with experts, peer networks, and external organizations can provide valuable support and guidance throughout the implementation process. Continuous adaptation and evolution: Technology is continuously evolving, and school heads must be prepared to adapt and evolve their practices accordingly. As new technologies emerge and educational needs evolve, school heads need to stay updated, assess the effectiveness of current technologies, and make necessary adjustments to ensure ongoing success in technology integration. This requires a proactive approach to learning, flexibility, and a willingness to embrace change. In summary, school heads' experiences as they implement technology in school management have far-reaching implications. They can enhance efficiency, improve decision-making, communication, and engagement, personalize learning experiences, promote professional growth, and support ongoing adaptation. However, it was essential to acknowledge and address the challenges that may arise and provide continuous support for successful technology integration.

4.3. Future Directions—School heads' experiences as they implement technology in school management provide valuable insights and lay the foundation for future directions in this area. Here are some potential future directions based on their experiences: Continued emphasis on professional development: School heads recognize the importance of ongoing professional development for themselves and their staff members. In the future, there would likely be a continued emphasis on providing relevant and effective professional development opportunities that focus on technology integration in school management. This may involve incor-

25

porating emerging technologies, digital pedagogies, data analytics, and leadership skills development into professional development programs. Integration of artificial intelligence (AI) and machine learning: As AI and machine learning technologies advance, school heads may explore their integration into school management practices. AI-powered systems can assist with data analysis, personalized learning, and administrative processes. School heads can leverage AI to gain deeper insights, automate routine tasks, and make data-driven decisions, leading to more efficient and effective school management. Focus on data privacy and security: With the increasing use of technology, data privacy and security become paramount concerns. School heads must prioritize implementing robust data privacy and security measures to protect sensitive student and school information. They would need to stay updated on regulations, policies, and best practices related to data privacy and security and ensure that appropriate safeguards were in place. Expansion of digital infrastructure: School heads would continue to invest in digital infrastructure to support the effective use of technology in school management. This may involve upgrading network capabilities, providing adequate devices and connectivity for students and staff, and ensuring reliable access to digital resources. School heads may assess their schools' digital infrastructure needs and develop long-term plans to support technology integration. Collaboration and partnerships: School heads will increasingly seek collaboration and partnerships with external organizations, such as technology companies, research institutions, and other schools or districts. Collaborative efforts can provide access to expertise, resources, and shared experiences, enabling school heads to navigate challenges and drive innovation in technology integration. Partnerships can also facilitate the development of customized solutions and the sharing of best practices. Focus on equity and access: As tech-

nology becomes more prevalent in school management, ensuring equitable access for all students and addressing the digital divide will remain a priority. School heads may need to address disparities in technology access and proficiency among students and communities. They may explore device lending programs, community partnerships, and digital literacy training initiatives to bridge the gap and promote equitable access to technology resources. Integration of emerging technologies: School heads may explore integrating emerging technologies such as virtual reality (VR), augmented reality (AR), robotics, and Internet of Things (IoT) devices into school management practices. These technologies can potentially transform teaching, learning, and school operations. School heads can explore how these technologies can be leveraged to enhance classroom experiences, streamline administrative processes, and create innovative learning environments. Ethical considerations in technology use: As technology becomes more prevalent, it is crucial for school heads to address ethical considerations related to its use in school management. This includes promoting responsible digital citizenship, ensuring ethical use of student data, and considering the potential impact of technology on student well-being. School heads play a key role in developing policies and guidelines that align with ethical principles and promote responsible and safe technology use. These future directions build upon school heads' experiences implementing technology in school management. School heads can navigate the evolving landscape of technology integration by embracing ongoing professional development, leveraging emerging technologies, prioritizing data privacy and security, expanding digital infrastructure, fostering collaboration, promoting equity and access, and addressing ethical considerations. This would ensure their schools' survival in the digital age and drive positive outcomes for their students.

5. References

Aboagye, E., Yawson, J., & Appiah, K. (2021). Covid-19 and e-learning: The challenges of students in a tertiary institution. *Social Education Research*, *2*(1), 1–8. https://doi.org/10.37256/ser.212021422

Abrams, L., Varier, D., & Jackson, L. (2016). Unpacking instructional alignment: The influence of teachers' use of assessment data on instruction. *Perspectives in Education*, *34*(4), 15–28.

Adada, N., Shatila, A., & Mneymineh, N. (2017). Technology leadership: Bridging the gap between problems and solutions in lebanese schools. In R. A. Styron & J. L. Styron (Eds.), *Comprehensive problem-solving and skill development for next-generation leaders*. USA.

Adie, L., Harris, L., & Wyatt-Smith, C. (2020). Examining research into using data walls for teaching and learning: How are they being implemented within data use cycles? *Teaching and Learning*.

Afzal-os-sadat, H. (2011). Explanation of creativity in postmodern educational ideas. *Procedia Social and Behavioral Sciences*.

Agency, P. N. (2020). Psc, deped agree to include pe under 'new normal' [Retrieved from https://www.pna.gov.ph/articles/1104208].

Aguinaldo, J. (2021). Challenges encountered by physical education teachers in online.

Ahmed, S., Khan, E., & Faisal, M. (2017). The potential and challenges of moocs in pakistan: A perspective of students and faculty. *Asian Association of Open Universities Journal*, *12*(1), 94–105. https://doi.org/10.1108/AAOUJ-01-2017-0011

Ajzen, I. (2011). The theory of planned behavior: Reactions and reflections. *Psychology & Health*, *26*(9), 1113–1127.

Alhazmi, A., & Kaufmann, A. (2022). Phenomenological qualitative methods applied to the analysis of cross-cultural experience in novel educational social contexts. *Frontiers in Psychology*, *13*. https://doi.org/10.3389/fpsyg.2022.785134

Alkan, C. (1996). *Educational technology*. Memoir Publishing.

Altinpulluk, H. (2018). The use of internet of things technology in educational environments.

Apuke, A., & Iyendo, T. (2018). University students' usage of the internet resources for research and learning: Forms of access and perceptions of utility.

Avello, R., & Duart, J. (2016). New collaborative learning trends in e-learning. keys for the effective implementation. *Estudios Pedagógicos*, *42*(1), 271–282. https://doi.org/10.4067/S0718-07052016000100017

Babych, M. (2024). How do innovations change the school management system? https://www.classter.com/blog/edtech/how-do-innovations-change-the-school-management-system/

Bacolod, D. B. (2022). Mobile learning as a solution for restricted learning during the covid-19 pandemic. *Journal of Digital Educational Technology*, *2*(1), ep.220.

Badil, M., Aslam, Z., Khan, K., Ashiq, A., & Bibi, U. (2023). Phenomenology qualitative research inquiry: A review paper. *Pakistan Journal of Health Sciences*, 9–13. https://doi.org/10.54393/pjhs.v4i03.626

Başaran, M., Doğan, E., Karaoğlu, E., & Şahin, E. (2020). A study on the effectiveness of distance education, which is the result of the coronavirus (covid-19) pandemic process. *Academia Educational Research Journal*, *5*(2), 368–397.

Becker, H. (2001). How are teachers using computers in instruction. *Annual Meeting of the American Educational Research Association*.

Bergdahl, N. (2022a). Engagement and disengagement in online learning. *Computers & Education*, *188*. https://doi.org/10.1016/j.compedu.2022.104561

Bergdahl, N. (2022b). Teachers' understanding of engagement in hybrid, remote and distance education [lärares förståelse av engagemang i hybrid, fjärr- och distansundervisning]. *Pedagogisk Forskning i Sverige*.

Bernhardt, V. (2004). *Using data to improve student learning in middle schools*. Eye on Education.

Bibri, S. (2022). The social shaping of the metaverse as an alternative to the imaginaries of data-driven smart cities: A study in science, technology, and society. *Smart Cities*, *5*(3), 832–874.

Bilgin, N. (2006). *Content analysis in social sciences: Techniques and case studies*. Political Bookstore.

Bond, M., & Bergdahl, N. (2022). Student engagement in open, distance, and digital education. In O. Zawacki-Richter & I. Jung (Eds.), *Handbook of open, distance and digital education* (pp. 1–16). Springer. https://doi.org/10.1007/978-981-19-0351-9_79-1

Bozkurt, A., & Sharma, R. (2020). Emergency remote teaching in a time of global crisis due to coronavirus pandemic. *Asian Journal of Distance Education*, *15*(1), i–vi. https://doi.org/10.5281/zenodo.3778083

Braun, V., & Clarke, V. (2013). *Successful qualitative research: A practical guide for beginners*. SAGE Publication.

Cameron, J., & Tougas, S. (2020). Reimagining higher education for a post-pandemic world. *Journal of Leadership, Accountability and Ethics*, *17*(5), 9–22.

Child Hope. (2021, March). The importance of technology in education in philippine education [Retrieved from https://childhope.org.ph].

Chung, E., Subramaniam, G., & Dass, L. D. (2020). Online learning readiness among university students in malaysia amidst covid-19. *Asian Journal of University Education*, *16*(2), 46–58. https://doi.org/10.24191/ajue.v16i2.10924

Cikrik, S. (2020). *Examining technology leadership competencies of school principals by teachers* [Non-Thesis Master's Project, Pamukkale University Institute of Educational Sciences].

Corner, E. J., Murray, E. J., & Brett, S. J. (2019). Qualitative, grounded theory exploration of patients' experience of early mobilisation, rehabilitation and recovery after critical illness. *BMJ Open*, *9*, e026348. https://doi.org/10.1136/bmjopen-2018-026348

Creswell, J. W. (2012). *Qualitative inquiry research design: Choosing among the five approaches*. SAGE Publications, Inc.

Creswell, J. W. (2013). *Research design: Qualitative, quantitative, and mixed methods approaches* (2nd). SAGE Publications.

Creswell, J. W., & Poth, C. N. (2018). *Qualitative inquiry and research design: Choosing among five approaches* (4th). Sage.

Dashper, K., & Fletcher, T. (2013). Introduction: Diversity, equity and inclusion in sport and leisure. *Sport and Society*, *16*, 1227–1232. https://doi.org/10.1080/17430437.2013.821259

Daum, D. N. (2020). Thinking about hybrid or online learning in physical education? start here! *JOPERD*, *91*, 42–44. https://doi.org/10.1080/07303084.2020.1683387

Davidson & Jones. (2000). Approach-withdrawal and cerebral asymmetry: Emotional expression and brain physiology. *Journal of Personality and Social Psychology*, *58*.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, *13*(3), 319.

Davis, F. D. (1993). User acceptance of information technology: System characteristics, user perceptions and behavioral impacts. *International Journal of Man-Machine Studies*, *38*(3), 475–487.

Denzin, N. K., & Lincoln, Y. S. (2000). The discipline and practice of qualitative research. In *Handbook of qualitative research*. Sage.

Dikmen, A., Kına, H., Özkan, S., & İlhan, M. N. (2020). Covid-19 epidemiology: What have we learned from the pandemic? *Journal of Biotechnology and Strategic Health Research*, 29–36.

Dinc, H. (2019). *Technology leadership competencies of school principals* [Unpublished master's thesis, Duzce University Institute of Social Sciences].

Do, J. W. (2020). An investigation of design constraints in the process of converting face-to-face course into online course [J. Educ.].

Domingo, L. (2022, May). Usaid launches a technology-based reading program for barmm learners, the manila times reports.

Drucker, P. (2019). https://www.druckerchallenge.org/retrospective/2019/

Durnali, M. (2019). Technological leadership behavior level exhibited by school principals according to the opinions of secondary school teachers. *Journal of Theoretical Educational Science*, *12*(2), 400–430.

Elliott, R., & Timulak, L. (2021). Descriptive-interpretive qualitative research: A generic approach. In *American psychological association*. https://soi.org/10.1037/0000224-000

Ersoy, A. F. (2019). Phenomenology. In A. Saban & A. Ersoy (Eds.), *Qualitative research designs in education* (3rd, pp. 81–138). Memoir Publishing.

et al., A. (2021). Virtual physical education during covid-19: Exploring future directions for equitable online learning tools. *Frontiers in Sports and Active Living*. https://www.frontiersin.org/articles/10.3389/fspor.2021.716566/full

Foster & Newman. (2005). "going going....." why are males underrepresented in pre-service primary education courses at university?

Gamboa, C. T. (2008). The language business. *Journal of Internet Banking and Commerce*, *13*(1), 1–5. http://corraydev.com/commerce/jibc

Gasson, S. (2004). Rigor in grounded theory research: An interpretive perspective on generating theory from qualitative field studies. In M. E. Whitman & A. B. Woszczynski (Eds.), *The handbook of information systems research* (pp. 79–102). Idea Group.

Giannini, S., & Lewis, G. S. (2020). Three ways to plan for equity during the coronavirus school closures [Retrieved from https://gemreportunesco.wordpress.com/2020/03/25/three-ways-to-plan-for-equity-during-the-coronavirus-school-closures/].

Glaser, B. G., & Strauss, A. L. (1967). *The discovery of grounded theory: Strategies for qualitative research*. Transaction.

Greenbank, P. (2003). The role of values in educational research: The case for reflexivity. *British Educational Research Journal*, *29*(6), 791–801. https://doi.org/10.1080/0141192032000137303

Institute, T. H. (2021). Physical education during covid-19.

Narici, M., De Vito, G., Franchi, M., & et al. (2020). Impact of sedentarism due to the covid-19 home confinement on neuromuscular, cardiovascular and metabolic health: Physiological and pathophysiological implications and recommendations for physical and nutritional countermeasures. *Eur J Sport Sci*, 1–22. https://doi.org/10.1080/17461391.2020.1761076

Neubauer, B. E., Witkop, C. T., & Varpio, L. (2019). How phenomenology can help us learn from the experiences of others. *Perspectives on Medical Education*, *8*(2), 90–97. https://doi.org/10.1007/s40037-019-0509-2

Ngampornchai, A., & Adams, J. (2016). Student's acceptance and readiness for e-learning in northeastern thailand. *International Journal of Educational Technology in Higher Education*, *13*, 34. https://doi.org/10.12691/ajnr-7-1-4

Odabaş, H., Odabaş, Z. Y., & Binici, K. (2019). The effects of digital information resources and environments on university students' reading behaviors. *Milli Eğitim*, *49*(227), 89–116.

OECD. (2015). *Students, computers and learning: Making the connection*. https://doi.org/10.1787/9789264239555-en

Okeke, M. (2019). Capital structure and firm value in nigeria (evidence from selected quoted firms). *Journal on Banking Financial Services Insurance Research*, *9*, 26.

Onwuegbuzie, A. J., & Leech, N. L. (2007). A call for qualitative power analyses. *Quality Quantity*, *41*, 105–121.

Organization, W. H. (2019). Insufficient physical activity [Accessed: September 27, 2020].

Organization, W. H. (2020a). Be active during covid-19 [Retrieved from https://www.who.int].

Organization, W. H. (2020b). The impact of covid-19 on sport, physical activity and well-being and its effects on social development.

Özer, M. (2020). Policy steps taken by the ministry of national education during the covid-19 epidemic in turkey. *Kastamonu Education Journal*, *28*(3), 1124–1129.

Pavlovic, A., DeFina, L. F., Natale, B. L., & et al. (2021). Keeping children healthy during and after covid-19 pandemic: Meeting youth physical activity needs. *BMC Public Health*, *21*, 1–8. https://doi.org/10.1186/s12889-021-10545-x

Petrocelli, A., Pecoraro, L., Ferruzzi, A., & et al. (2020). Effects of covid-19 lockdown on lifestyle behaviors in children with obesity living in verona, italy: A longitudinal study. *Obesity (Silver Spring)*. https://doi.org/10.1002/oby.22861

Philp, J., & Duchesne, S. (2016). Exploring engagement in tasks in the language classroom. *Annual Review of Applied Linguistics*, *36*, 50–72. https://doi.org/10.1017/S0267190515000094

Polat, S., & Özcan, A. (2014). Views of classroom teachers on the use of smart boards. *Kastamonu Education Journal*, *22*(2), 439–455.

Ređep, N. B. (2021). Comparative overview of the digital preparedness of education systems in selected cee countries [Center for Policy Studies, CEU Democracy Institute].

Ribble, M., & Bailey, G. (2007). *Digital citizenship in schools*. ISTE.

Ricketts. (2020). Physical education in schools [Retrieved from https://study.com/academy/lesson].

Saban, A. (2006). *School technology planning: An applied model proposal for primary schools and its results in terms of teacher training system* [Doctoral Thesis].

Safaavi, A. (2008). Developing countries and e-learning program development. *Journal of Global Information Technology Management*, *11*(3), 47–64.

Şahin, M. (2023). A study on the role of school administrators in school improvement. *The Journal of International Education Science*, *10*(34), 382–398.

Sallis, J., & Pratt, M. (2020). Physical activity can be helpful in the coronavirus pandemic [Retrieved from https://americawalks.org/physical-activity-can-be-helpful-in-the-coronavirus-pandemic/].

Sanjari, M., & et al. (2014). Ethical challenges of researchers in qualitative studies: The necessity to develop a specific guideline. *Journal of Medical Ethics and History of Medicine*.

Schmidt, S. K., Reinboth, M. S., Resaland, G. K., & Bratland-Sanda, S. (2020). Changes in physical activity, physical fitness and well-being following a school-based health promotion program in a norwegian region with a poor public health profile: A non-randomized controlled study in early adolescents. *International Journal of Environmental Research and Public Health*, *17*. https://doi.org/10.3390/ijerph17030896

Selcuk University, I. o. S. S. (2021). Problems faced by classroom teachers in the covid-19 pandemic distance education process.

Shen, J., Cooley, V., Ma, X., & Reeves, T. (2012). Data collection and data analysis in quantitative and qualitative research in education. *European Journal of Educational Studies*, *1*(4), 257–264.

Shi, X. (2016). A comparative study of e-learning platform in reading and translating course for engineering students. *iJET*, *11*(4). https://doi.org/https://online-journals.org/index.php/i-jet/article/view/5551

Silins, H., & Zarins, S. (2002). What characteristics and processes define a school as a learning organization? is this a useful concept to apply to schools? *International Education Journal*, *3*, 24–32.

Teachmint. (2021). Sports teacher.

TEDMEM. (2021). Covid-19 and the situation of schools in the world.

Telli Yamamato, G., & Altun, D. (2020). Coronavirus and the rise of online education to non-prevention. *Journal of University Studies*, *3*(1), 25–34.

Tore Dahl, B., & Asif, I. M. (2020). Coronavirus disease 2019 (covid-19): Considerations for the competitive athlete. *Sports Health*, *12*, 221–224. https://doi.org/10.1177/1941738120918876

Turan, S. (2002). The role of the education manager in the effective use of technology in school management. *Educational Management in Theory and Practice*, (30), 55, 271–28.

Turner, E., & Coburn, C. (2012). Interventions to promote data use: An introduction. *Teachers College Record*, *114*(11), 1–13.

Uçar Sarımanoğlu, N. (2019). Difficulties encountered by teachers in using educational technology in classrooms.

Unal Bozcan, E. (2010). Journal of educational technology research. *Sakarya University*, *1*(4), 1–13.

UNICEF. (2019). The state of the world's children 2019: Children, food and nutrition: Growing well in a changing world [Accessed: August 03, 2020].

Utomo, S. (2022). Leadership role of school principles to motivate teachers promotion at public junior high school 4 kudus in 2021. *ANP Journal of Social Science and Humanities*, *3*, 30–39.

Vanblaere, B., & Devos, G. (2016). Relating school leadership to perceived professional learning community characteristics: A multilevel analysis. *Teaching and Teacher Education*, *57*, 26–38.

Villalba, A., & González-Rivera, M. (2016). Integration of ict in physical education for the improvement of the educational intervention: Perception and proposals. In J. E. (González (Ed.), *Trends and innovation in higher education* (pp. 307–322). JAPSSPress.

Wagar, C. (2020). The importance of pe among our youth during a pandemic.

Yavuz, S., & Coşkun, E. (2008). Attitudes and thoughts of primary school teachers on the use of technology in education. *Hacettepe University Faculty of Education Journal*, *34*(34), 276–286.