



EXTENT OF UTILIZATION OF PAPERLESS TECHNOLOGY: BASIS FOR A PROPOSED INTERVENTION PROGRAM

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Abstract:

The purpose of this study was to assess the extent of utilization of paperless technology by the teachers in Bula District. The respondents of this study were the 204 teachers in the five different schools in Bula District namely: Bula Central Elementary School, Jose Divinagracia Elementary School, Dadiangas East Elementary School, Bula National School of Fisheries and Baluan National High School. A descriptive evaluative research design was utilized in this study. Based on the results of this study, it was revealed that the teachers have perceived that the utilization of paperless technology has been highly useful in grade management and test bank management; however, they found it moderately useful in user management. Nevertheless, the utilization of paperless technology by the teachers was highly recommended to be utilized by the teachers. Finally, this study shows educators how paperless technology can reduce teacher workload, save money, and protect the environment while improving the teaching and learning process.

Keywords: educational management, paperless technology, intervention program, descriptive evaluative, Philippines

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1. Introduction

For the past few years, carrying heavy textbooks has been a problem for learners. Aside from books being heavy for learners to bring to school daily, several things could be improved with them. Textbooks are too expensive. Although free texts in public schools, learners enrolled in private institutions must pay for books. Also, many learners need to learn to use the textbook or use them to look up something like a formula. On the other hand, new technology is constantly making its way into the classroom to improve the learning experience; one of the innovations is paperless technology (Baby & Saeed, 2020).

However, the advantages of a paperless classroom are numerous and assist both learners and teachers. The first benefit is the absence of actual paper, which can be misplaced, forgotten, or destroyed over time. Not having to photocopy each handout, which is a laborious process, especially when the copier breaks down, is another advantage for the teacher. Documents can be uploaded to Blackboard and accessed by learners using iPads instead of photocopies. Even chaotic learners can find their weekly lecture notes organized on Blackboard by the teacher. Learners need not build a filing system (Lieberman & Singh, 2017).

Several identified teachers in Bula District are utilizing paperless technology. However, some are still using textbooks as their sources. In the 21st century, people rely on and use more innovative high-technological devices and appliances to make jobs easier. Moreover, the Department of Education also utilizes innovative technology in teaching. This study aimed to determine the use of paperless technology in the teaching and learning process. Due to the rise and development of paperless technology, there was an emerge of paperless classrooms to improve the learner's computer literacy.

Consequently, there is an urgent need to evaluate the use of paperless technology in schools in order to ensure that the educational system adapts to the 21st-century learning environment, providing students with the required skills and resources while decreasing costs and environmental effects. Therefore, the researcher conducted this study to assess the level of implementation of paperless technology in the identified schools in the Bula District, namely Bula Central Elementary School, Jose Divinagracia Elementary School, Dadiangas East Elementary School, Bula National School of Fisheries and Baluan National High School in the school year 2021-2022.

1.1 Research Objectives

This study determined the Extent of Utilization of Paperless Technology as Basis for A Proposed Intervention Program among teachers in Bula District for the school year 2021-2022.

Specifically, it presented the following objectives:

1. To determine the extent of utilization of paperless technology in terms of:
 - 1.1 Grade management;
 - 1.2 Test bank management; and
 - 1.3 User management.

2. To craft an intervention program based on the result of the study.

2. Literature Review

This section deals with the related literature and studies that bear on the present investigations.

2.1 Utilization of Paperless Technology

The utilization of paperless technology in education has become increasingly prevalent and beneficial for teachers and students alike. By embracing digital tools and processes, teachers can revolutionize their classrooms and enhance the learning experience. One key aspect of paperless technology utilization is the adoption of digital classrooms. Through interactive whiteboards, tablets, and laptops, teachers can deliver engaging lessons, share digital resources, and facilitate interactive learning activities. This not only reduces reliance on physical materials but also fosters a dynamic and immersive learning environment.

Moreover, the paperless technique includes a work culture and an environment in which the use and utilization of paper are minimized by the maximum transfer of work on digital servers, applications, portals, and computer systems. A paperless system is an environment in which paper usage is eliminated, removed, or significantly reduced. It is the conversion of documents and other papers into digital forms. The 21st century is a technologically driven era. Thus, educators in the 21st century are vested with preparing learners for the emergence of an information society (Ghosh & Abeysiriwardhane, 2021; Paliwal et al., 2022).

Markedly, the information age and society have presented unprecedented opportunities for educators and all other related sectors in the education field to digitize traditional classrooms. A significant evolution can empower teachers to extend the channels of knowledge dissemination and unleash learners' learning and learning process power from the little four corners of the classroom and its manacles of physical classrooms. Teachers, as educators, must adopt the trend and be able to adjust and fit the learning style of 21st-century learners (Addo, 2022; Piramanayagam, 2022).

In addition, the utilization of paperless technology enhances communication and collaboration. Teachers can leverage various digital communication tools, such as email, instant messaging, and video conferencing, to communicate with students, parents, and colleagues. Collaboration tools, such as shared online documents and project management platforms, facilitate group work and foster a sense of teamwork among students and teachers.

Due to the rise and development of paperless technology, there was the emergence of the paperless classroom. Its primary rationale is to promote a more efficient and organized classroom while preparing learners for the practical world outside school walls. On the plus side, it is clear that the internet and ICT tools have evolved over the previous ten years into a vast volume of accessible knowledge, ease of contact, and

learning methods employing digital devices. It also includes paperless workplaces and more schools offering virtual lessons. Nonetheless, it is a new paradigm of education, not just a new instrument or way of teaching and learning. Paperless pedagogy seeks to improve the learning experience by assisting students in developing electronic skills and competencies (Al Jaber et al., 2022; Ochi, 2021).

More importantly, the primary objective of the paperless classroom is to improve the students' computer literacy and equip them for life outside of the classroom. When implementing a paperless classroom, environmental problems should be taken into consideration. To sum up, the demands for a comprehensive shift to an electronic mode of instruction have become an inevitability of today's social realities. For this reason, many educators and education implementers have developed lesson and instructional materials utilizing paperless technology (Robinson, 2018; Senyo et al., 2021).

Additionally, research has indicated that younger learners were more optimistic about using iPads and laptops than older learners. Similarly, boys are more favorable than girls in the use of technology. Therefore, the teacher's epistemology of knowledge is conditioned by his competence to provide appropriate technological instruction to the learners. The idea of paperless classrooms emanated from the fact that life outside the school has become increasingly dependent on technology and many offices now transact their business in the paperless mode. Since the early adoption of Internet technology by teachers and educational institutions, various studies have been implemented and done to explore and discover the conceptualization of the paperless classroom, focusing on its impact on the traditional learning environment (Goddard, 2021; Paliwal et al., 2022).

2.2 Advantages of Paperless Technology

21st-century educators are vested with the task and challenges of preparing learners for the emergence of an information society. So, to face this challenge, the teachers and educational institutions ventured to create and develop a wholly digital environment where the exchange of physical materials between teachers, educational institutions, and learners is virtually eliminated. Additionally, these developments and discoveries have a great advantage for the learners, teachers, and, more importantly, the department of education (Boardman et al., 2020; Genesis & Oluwole, 2018).

Moreover, one of the advantages is the savings from printing as one of the most prominent factors to consider. The first benefit is the absence of actual paper, which can be misplaced, forgotten, or destroyed over time. This function avoids the exchange of biological materials between students and teachers, demonstrating a paperless classroom's practicality and financial benefits. Not having to photocopy each handout, which is a laborious process, especially when the copier breaks down, is another advantage for the teacher. A document can be uploaded and conveniently accessible utilizing smartphones, iPods, laptops, and tablets rather than photocopying (Jampala & Shivani, 2019; Msiza et al., 2020).

An additional advantage is a paperless assessment. Teachers have the most powerful lever to influence how learners respond to courses and behave as learners. To

put it in another way, researchers have viewed the appropriate assessment methods as necessary in encouraging learners to adopt successful approaches to their learning. According to experts, changing teaching without paying attention to assessment is insufficient. Moreover, the paperless examination allows teachers and educational institutions to conduct digitized assessments. Thus, it has the distinct advantage of giving immediate feedback and provision for instigating remedial measures for the learners (Pargi, 2019; Ting, 2018).

Moreover, paperless technology reduces expenses, increases productivity, improves turnaround, and offers better security. Not only can going paperless help improve our assessment, but going paperless help reduce our carbon footprint. Below are some of the advantages of a paperless assessment tool. Regarding homework, it usually comes in paper worksheets or bookwork. Fewer teachers can now use fewer paper worksheets, saving them the time and expense of printing extra copies for their students. Additionally, students will be able to rest easy, knowing that they will never lose their assignments. Electronic document management solutions can reduce pollution and deforestation, leaving more trees to absorb carbon dioxide and reversing climate change (Gupta & Bansal, 2019; Mohamed et al., 2022).

Additionally, the paperless classroom has offered other benefits to the school system. A few studies focused on the cost savings to a district that the paperless classroom provides. One study emphasized the impact on environmental awareness and education about sustainability that the paperless classroom affords the educator. Another study identified a 48% cost savings in paper usage for the science department from the year before the implementation. Although these considerations should be included when a school district implements the paperless classroom concept, they should be less relevant than the potential impact on learner achievement. Stated that if one teacher decides to utilize and use paperless assessment in their classroom, just a few more trees will get to stay alive longer. As we move into the future, it is more important to use fewer resources. With these little steps, it is nice to see more pioneers in greener education (AbdulKareem et al., 2020; Bleviss, 2018).

Furthermore, the paperless network test has changed the traditional examination mode and has become a method characterized by "*the whole process, diversification, multiple events, multiple venues, and multiple contents.*" Because the system randomly disassembles the order of the questions when extracting the test paper, it is difficult to cheat between two adjacent candidates. The system is highly informative, integrating the construction and management of test questions, intelligent test papers, and statistical analysis. At the end of the exam, teachers with the appropriate permissions can export learner papers, save paperless, do not need to staple, and occupy physical space. During the examination process, according to the characteristics of the curriculum, learners may be allowed to use Visual Studio C++, Office, Access, and other simulation software to reduce learners' rote learning and facilitate application testing (Garcia-Martinez et al., 2020; Zakaria et al., 2021).

The obvious benefit of this approach is that the learner's examination environment is the same as the practice environment. We complete the learning and testing in stages and points of knowledge and include the test results in the final assessment according to a certain percentage. It not only reduces the difficulty of learners' learning but also helps learners grasp their deficiencies in the learning process. It also dramatically stimulates learners' self-learning ability to gain something and improve learning efficiency. The process evaluation also significantly promotes teachers' teaching, helping teachers promptly understand learners' learning dynamics and arranging teaching content more reasonably. The process evaluation can increase the interaction between teachers and learners and timely obtain feedback on teaching effects, which helps to find problems in the teaching process (Omehia & Nsirim, 2022; Pornphol & Tongkeo, 2019).

At the end of the exam, teachers can learn the learners' answer questions, their points of knowledge, and the scores of various questions. In addition, it is helpful for teachers to analyze the difficulty of the questions in time, understand the learning situation of learners so that they can improve their teaching strategies on time, and develop personalized coaching to make full use of the assessment, feedback, and promotion functions of the exam (Kamal, 2022; Wahyuni et al., 2019).

Furthermore, users can set up examinations according to actual needs and allocate examination papers for the sessions to use different test papers for additional reviews. After the examinee hands in the report, the test questions that the examinee did not respond to by clicking the "answer" button are ignored during the system judgment process. After the test, the system automatically judges the scores, selects test subjects and test paper assignment plans as required, analyzes the test scores of the testers, and generates statistical analysis reports in Excel format. Also, it examines various analysis data to understand the learners' knowledge of different knowledge points. It reflects the teaching effect and serves as a reference for improving follow-up teaching (Kamiljanova & Rasulmetova, 2022; Makwela, 2019; Zakaria et al., 2021).

Another advantage of paperless classrooms is that they introduce young children to crucial digital technology tools and techniques. Paperless assignments can help students develop skills, including digital reading and annotation, online submission, and multimedia participation. Learners require these abilities for both college and the workplace. Their readiness for the future is increased when they learn them early. In addition, the demands of unorganized and forgetful students can be met by using technology to access and complete assignments. Finally, learners who struggle with losing papers, staying engaged, or missing class due to personal reasons can benefit from digital classrooms, adding consultants, and paperless movement. By eliminating these problems, school becomes more engaging, consistent, and streamlined for those learners (Pargi, 2019; Ting, 2018).

On the other hand, fewer opportunities for lost or forgotten work eliminate the excuses. Learners almost always have their devices on hand, so there is no excuse not to complete or engage with the work. *"In addition, learners can be reminded of their homework multiple times using the announcement function in Blackboard, which is less liable to be seen as*

nagging" he writes. In turn, teachers can hold learners to a higher level of accountability for completing homework. It builds mutual respect between teachers and learners while also preparing learners for the increased workloads of senior grades and college (Bassa et al., 2021; Zakaria et al., 2021).

2.3 Disadvantages of Paperless Technology

Numerous studies have highlighted the benefits of employing technology in the classroom. The push to include technology in education has become widespread across the globe. The amount of technology used in classrooms nowadays is used to measure the efficacy of educational institutions. Around 88 percent of eighth-graders and 83 percent of fourth-graders in the United States in 2015 reported using computers at home. Similarly, data from the National Center for Education Statistics shows that 80% of eighth-graders use a computer for schoolwork. A technology system is now being used in 60,000 schools in China to grade learner tests, thus replacing human graders. While technology is beneficial, some dramatic repercussions should still be discussed (Jampala & Shivani, 2019; Msiza et al., 2020).

As a result, the debate has recently been increasingly heated, and a startling rise in the number of researchers that aim to underline it. However, in truth, digital technology and interaction *"also pose major hazards to children's safety, privacy, and well-being, amplifying threats and harms that many children already experience offline and making already-vulnerable children even more susceptible,"* according to a report published by UNICEF 2017 (Alijohani & Thompson, 2018; Osei-Owusu et al., 2021).

Moreover, computer-based instruction is now the norm in all learning environments worldwide, reshaping minds and imposing new roles on teachers and learners. Learning is the strategies people use to *"acquire new, or modify existing, knowledge, behaviors, skills, values, or preferences."* The use of paperless technology in the classroom has made pupils more engaged, motivated, and eager to learn. They also take on more accountability for their education. In addition, technology is thought to impact individualizing learning, increasing pupils' independence in problem-solving (Goddard, 2021; Vaiciuniene & Kazlauskiene, 2022).

As a result, educators are now architects or designers of learning environments rather than information broadcasters. Most of their work involves rearranging the components of efficient learning by putting oneself between the pupils and the curriculum. Recent studies, however, have demonstrated that technology hurts the educational process, particularly in decline in learners' abilities in reading, writing, and mathematics, which are the three main areas of study: the fundamental three abilities all learners should possess, the dehumanization of education in many settings, and the distortion of the relationship isolation of kids in a digital and virtual world that separates them from any interaction between professors and learners social interaction, a widening social divide between the wealthy and the poor (Genesis & Oluwole, 2018; Sofia et al., 2021).

However, the classroom generally improves learners' academic performance and increases their motivation to complete their assignments despite the widespread belief that technology is used. Heavy reliance on technology negatively impacts learners' abilities in three unquestionably crucial areas: reading, writing, speaking, and mathematics. Typing makes it challenging to read and write by hand, and information technology (IT) causes information to be processed quickly. Learners learn less from Google Books than from physical books and magazines (Baby & Saeed, 2020; Osei-Owusu et al., 2021).

In fact, learners' capacity to compose complete sentences has been significantly damaged, which indicates how electronic devices like cellphones, tablets, PCs, and laptops harm learners' performance without gaps or unnatural punctuation—the lecture hall. Technologies significantly impact learners' writing skills, particularly spelling, punctuation, grammar, proofreading, critical thinking, and respect for coherence and linearity. Experts contend that pupils constantly exposed to short forms lose their motivation to put forth effort in their writing. Also, it isn't easy to discern between formal and informal writing styles due to the temporary conditions regularly employed in texting (Duval & Hardy, 2021; Gupta & Bansal, 2019).

Furthermore, technology has allowed more knowledge to be taught in a shorter time and has undoubtedly improved learners' abilities to visualize this information (through, for example, PowerPoint). However, the excessive reliance on technology in schools (presentations, maps, and charts) has a dehumanizing effect. Experts claim that education has been pulled from human endeavors and transformed into a technology behemoth in the past ten years, gradually displacing the profession's soul. According to Jewish mythology, this "leviathan" is a mythical sea monster that can be found in many areas and at various levels of education, including pre-packaged curricula that were not created by the instructor of a specific course (Kamiljanova & Rasulmetova, 2022; Wahyuni & Sri Wuli Fitriati, 2019).

2.4 Paperless Technology Empowers Learners

The paperless classroom serves an essential role in preparing learners for the 21st century, offering them an environment where they can learn crucial skill sets for the digital future. In a paperless classroom, all academic activities are digitalized because textbooks and notebooks are not allowed in the school. All examinations, quizzes and assessments, and grading are implemented in paperless mode. An observational analysis of learners' behavior patterns revealed that many undergraduate learners of Dhofar University unconsciously practice some basic concepts in paperless classrooms (Ali, 2021; Sandeep, 2020).

Additionally, a specific case in context is the unexpected use of a digital textbook of the English Language in an engineering class. When many male course learners said they did not have the book, they were asked to get a photocopy of the particular unit. One immediately asked the teacher why not use an LCD projector and display the lesson for the whole class. He knew a soft copy of the book was stored in the classroom

computer, mainly used for the class listening activity. It was an eye-opener for the EFL/ESL teacher. On that day, the reading activity class was conducted in a class by using the digital version of the textbook. The whole class enjoyed the fresh experience of looking at the screen in an English reading class instead of using their books (Meishar-Tal & Shonfeld, 2019; Mohamed et al., 2022).

There are several advantages to paperless classrooms. First of all, it can offer improved efficiency in the learning experience. This efficiency is achieved in terms of time and accessibility to materials, primarily through the internet and the proper organization of materials that contain relevant information. Also, improved communication between learners and teachers can enhance the learning experience and provide transparency and effectiveness in assessment and grading. Other advantages, such as the facilitation of asynchronous learning, can help learners develop the virtual environment skills and competencies they will need later in life. Moreover, learners can collaborate to share ideas and submit their homework online, while teachers can find everything in one location, making their work comfortable, easy, and flexible (Bassa et al., 2021; Posada et al., 2021).

Finally, the traditional paper-dependent learning experience can be replaced with a more efficient exchange of information and feedback in virtual space, along with the electronic storage and maintenance of grade files. The primary requirement for the paperless classroom is to own a laptop, iPad, or any digital device that can access the internet and download and use different applications. An important argument against the digitalization of teaching-learning methodology is that new technologies are expensive, and everyone may need help to afford them. In addition, some researchers have pointed out that the chief preoccupation of learners with their digital devices has resulted in a severe lack of social skills among many learners (Omehia & Nsirim, 2022; Pornphol & Tongkeo, 2019).

Moreover, talking about underdeveloped social skills, many researchers further pointed out that when online space becomes a more important place for interaction, social anxiety rises due to reduced human interaction. Similarly, the continuous use of digital media seriously affected the skill of reading books and writing on paper. Moreover, excessive exposure to a digital screen can cause damage to the eyes, and a lack of writing skills can seriously hamper the dexterity of hands, in addition to an over-dependence on digital devices (Bassa et al., 2021; Bleviss, 2018).

Most of the above charges are successfully countered by the votaries of paperless classrooms. Many researchers agree that group assignments provide all learners with opportunities for human interactions in real and virtual spaces. Moreover, project work offers opportunities for building human relations among learners with a common goal and objective. Similarly, the need for more reading from books and writing on paper can be promoted outside the classroom. These habits can be consciously cultivated at a personal level and sometimes enhanced by the social necessities of human interaction outside the academic realm (Cato et al., 2018; Makwela, 2019).

A. Grade Management

Software called the Student Grade Management System is used to keep track of each student's grade across the entire college, which comprises many departments and programs. The registrar's office will use this project's campus-wide information system, which focuses on grade compilation. The complex offline grading procedures are automated and streamlined by grade systems in education. Each student will automatically receive a hassle-free grade report. Both teachers and school administrators have easier lives now. After that, all the teachers need to do is enter the grade points for assignments and tests for each student. Additionally, the attendance grading will be integrated with the grading scheme based on each session's student attendance statistics (Kamiljanova & Rasulmetova, 2022; Makwela, 2019; Zakaria et al., 2021).

Moreover, online tests will also automatically and without a teacher's input integrated with the grading system. Each of the grading components listed above will add its own predetermined weight to the overall grading system. The grading system will determine the course grade based on that weight and provide each student with an accurate grade. The system will use the intricate mathematical equations built into it to calculate all of the gradings. The system then generates the grade percentage and grading scale for each course using the scales established by the school administration. Based on how each course is graded and how much it contributes to the final grade, the grading system determines the overall Grade Percentage (Bassa et al., 2021; Zakaria et al., 2021).

B. Test Bank Management

Test Bank is the computer program that houses all of the questions used to create it. A high-quality test is a crucial component of the educational system. With reference to each subject's objectives, that can be used to assess student achievement. Additionally, it enables students to assess their own content understanding at the conclusion of each chapter and identify their individual areas of weakness. In addition to developing an online test bank management system to facilitate the creation and analysis of exams, this research, The Online Test Bank Management System in Integration Model, also integrated online lessons to provide the contents that students did not understand in order to effectively help them improve their performance. In addition, website management and test bank management make up the two components of the integration model's online test bank management system (Omehia & Nsirim, 2022; Pornphol & Tongkeo, 2019).

C. User Management

A system for managing user access to devices, programs, and services is known as user management. It focuses on controlling access and action permissions as well as keeping track of usage. Giving users authenticated access, supporting the setup, reissuing, and decommissioning of users' access credentials, and establishing access privileges based on permissions are all functions of user management. Additionally, user management has the ability to monitor accounts for software licenses over the course of those licenses'

lives. As a result, all users are guaranteed to have valid licenses for the software they are using, which can be reclaimed and renewed when the licenses are no longer needed (AbdulKareem et al., 2020; Bleviss, 2018).

Moreover, user management refers to an administrator's capacity to control users' access to various IT resources as well as devices, systems, applications, storage systems, networks, and SaaS services. Any identity and access management (IAM) solution, in particular directory services tools, must include user management as a fundamental component. For any organization, controlling and managing user access to IT resources is a fundamental security requirement. Administrators can manage user access and on-and off-board users to and from IT resources using a user management system. A directory service will then, in accordance with the instructions given by the IT administrator, authenticate, authorize, and audit user access to IT resources (Kamal, 2022; Wahyuni & Sri Wuli Fitriati, 2019).

D. Google Forms as an Assessment Tool

Google Forms is a survey management tool that is a part of the free, web-based Google Docs Editors suite, according to create a survey using Google Forms. Google Docs, Sheets, Slides, Drawings, Sites, and Google Keep are just a few services that Google Form offers. Google Forms is also only accessible via a web browser. Its applications allow users to create and edit surveys online while collaborating with others in real-time. Thus, the collected information can be automatically entered into a spreadsheet and available to access anytime with the aid of an internet connection (Oliveira et al., 2021; You & Huang, 2022).

In addition, a web-based tool called Google Forms is used to design forms for data collection. Learners and teachers can use Google Forms to make surveys, quizzes, or event registration sheets. It is the primary assessment tool the researcher utilizes to create an effective paperless tool that is cost-saving and can be used for assessment. However, also for the advantages of improving the efficiency of management work, saving test resources, standardizing test management for the teachers, and effectively facilitating the examination of the learners (Kamal, 2022; Vaiciuniene & Kazlauskienė, 2022).

Furthermore, enumerated below are the salient features of google forms that the researcher believed to be an effective tool or application used in facilitating learners' assessment: First, it offers intelligent answer validation, which means that users cannot be able to fill up your forms with meaningless information any longer. One can use Google Forms to comprehend the responses better that students (or their parents) provide. One can specify that the answer to a question on one of the forms must include a website, an email address, or a whole number. There may still be a few hoax responses, but the illogical ones will probably be eliminated (Al Jaberi et al., 2022; Omehia & Nsirim, 2022).

Second, it's critical to make sure that user data is secure and private because cross-domain file uploads can pose security risks if not implemented properly. Although Google Forms and Google Drive already come with security features like access controls

and user permissions, it is still crucial to set them up properly. Cross-domain file uploads can be a useful tool for promoting online learning and collaboration, even though they may call for additional configuration and attention to security measures. To ensure a secure and efficient learning environment, it is crucial to carefully consider the benefits and risks and implement them.

D. Third Multiple Preferences

We do send out many forms that have almost identical formatting. With the new preferences feature, one can save time by applying rules to every new record one creates. One can collect learner emails at the start of each document, provide quiz point values, and more. One can set up their Google forms exactly how they want them to be for all time with just a few mouse clicks. The learners can select from a variety of possibilities within each category. The most common application is to get input on the ideal time for a class project or field trip. The checkbox grid allows learners to choose the days and times that are most convenient for them. However, there may be situations when this will be useful when creating a new quiz (Pornphol & Tongkeo, 2019; Sandeep, 2020).

Furthermore, the fifth section is reordering. One finished the form only to realize that all sections needed to be in the right order. In the past, one used to be stuck with their mistake unless they wanted to create an entirely new document. With the new section reordering feature, one can move them around, delete sections, or duplicate parts of their form more easily. It lets one get the thoughts down on paper before figuring out the logical flow for the following quiz. Even within one section, one can use Google Forms to shuffle the question order and answer choices, allowing one to make multiple versions of an exam (Lieberman & Singh, 2017; Oke & Oludele, 2022).

2.5 The Implications of Adopting Paperless Classrooms

Many educators believe that paperless education promotes a more efficient and organized classroom while preparing learners for the practical world outside classroom walls. Before introducing technology, educators must be knowledgeable and comfortable administering all the web tools used in the classrooms. The first step in developing a paperless classroom was making available the necessary digital devices and adequate internet bandwidth. The second step was using Learning Management Solutions (LMS) or creating Classroom Websites. Many educational institutions make effective use of technology in their instructional activities in the classrooms. Most teachers are comfortable applying the possibilities of technology in their instructional activities (Ali, 2021; Paliwal et al., 2022).

Also, a paperless policy also implies a shift in teaching methods away from a teacher-centered approach and toward a learning environment where students discover and structure their knowledge via interaction with other students. In a paperless classroom, constructivist education that prioritizes learners and learning can be implemented. Similarly, changes in how we acquire knowledge, most notably via the internet, will force teachers to adopt a new epistemology of proficiency. It is not just about

having access to other techniques and instruments but also about having the capacity to deal with technology and make proper technological education decisions that can significantly impact learners. (Chen & Liu, 2021; Posada et al., 2021).

Moreover, the paper-based examination system has exposed the disadvantages of wasting resources and polluting the environment. Computer and database technology development has injected new vitality into education. The paperless examination system is an essential application of computers in the information age. In addition, it is a necessary change in educational ideas and teaching methods brought about by modern science and technology. Modern classrooms see many innovative practices in facilitation to explain their content better. It was emphasized by learners' perception of using clicker technology as a form of paperless examination. Moreover, it comes up with results that show learners enjoyed using clickers in class for formative assessment. Therefore, familiarize learners using it confidently in summative assessments (Kamal, 2022; Piramanayagan, 2022).

Furthermore, investigation of paperless language learning in the context of the United Arab Emirates. The data collected showed positive learner attitudes towards iPad implementation as a language learning tool in terms of learner satisfaction, motivation, perceived tool usefulness, and learning effectiveness. Reflective journal analysis showed that the digital world presents learners with a direct link between the effort taken and the reward received. In contrast, the feedback or the compensation given by the teachers in the traditional classroom was either too nebulous or too slow to motivate learners to keep the pace of progressive learning (Kumar et al., 2021; Wahyuni & Sri Wuri Fitriati, 2019).

2.6 National Issues and Intervention Using Paperless Technology

The current situation around the world is affected by the pandemic caused by the Corona Virus (Covid-19). In the Philippines, on March 16, 2020, the entire country was placed in a national health emergency status. Five weeks have passed since Metro Manila and other provinces were placed under "enhanced community quarantine" as of the third week of April 2020. Under ECQ, university sessions were postponed, large gatherings were forbidden, and government offices were staffed to the bare minimum. Additionally, stores were shut down save for those selling necessities, mass transit was halted, and residents were instructed to maintain social segregation policies and remain at home (Oke & Oludede, 2022; Piramanayagan, 2022).

Moreover, the Department of Education in the Philippines has released a press statement, "*DepEd prepares Self-Learning Modules for education's new normal.*" As the department is preparing for the opening of the School Year 2020-2021, DepEd will provide Self-Learning Modules (SLMs) together with alternative learning delivery modalities to be offered for the majority types of learners across the entire Philippines. Therefore, DepEd can guarantee that all students in this school have access to high-quality primary education with the support of the following alternative learning delivery methods: online, blended learning, television- and radio-based instruction, and modular

learning. Unfortunately, face-to-face instruction was still absolutely prohibited due to the state of public health at the time (Cato et al., 2018).

Even though, the Department of Education (DepEd) was faced with the challenge of upholding and fulfilling its role in providing quality education for every Filipino learner while safeguarding them and the teachers from the current deadly virus. The global pandemic has endangered everyone's health, safety, and lives. Therefore, the department was urgent in addressing to meet the demands and provide necessary actions to cater to the continuation of quality education for every Filipino learner with the observance of the safety of public health (Goddard, 2021; Sofia et al., 2021).

The Department of Education introduced the DepEd Commons in response. It is an online platform for public school teachers to support distance learning modes, according to DepEd. In the event of a class suspension or other similar situation, it was created as an immediate fix to provide access to online study materials and Open Educational Resources (OERs). The department has adopted paperless technology to reduce or eliminate physical touch between students and teachers. It also involves adhering to the IATF's health regulations. There is no denying that the Department of Education (DepEd) intends to put this idea into action and dig deeper into the consequences of this online learning. (Gupta & Bansal, 2019; Meishar-Tal & Shonfeld, 2019).

According to the department, the foundation for blended learning is already in place. This year, pre-existing methods used for years—radio, television, online, and modular learning—are being updated and prepared. Online learning refers to education received over the internet and other digital platforms. Among other names, it is frequently referred to as "e-learning." Online learning is only one sort of "distance learning," which is the general term for any learning occurring over distance and outside a regular classroom (Stem, 2018). Teachers are also trained in using more modern platforms and cutting-edge tools to further their professional development (Garcia-Martinez et al., 2020; Vaiciuniene & Kazlauskienė, 2022).

2.7 DepEd Order No. 39, s. 2016: Adoption of the Basic Research Agenda

In order to utilize available resources, assure alignment with DepEd's vision, mission, and goals, and create platforms for the sharing and application of findings, this policy directs the conduct of fundamental education research. The Department of Education's planning, policies, and program development will be influenced by the evidence gathered and examined by its stakeholders at the national and local levels. Therefore, it is encouraged to develop regional and division research agendas that reflect local issues and easily integrate with the overall plan (DO No. 39, s. 2016; Ochi, 2021).

According to the department's vision, mission, and objective outcomes, as well as local and global changes in the field, the research agenda identifies study areas that would close significant knowledge gaps and address urgent issues in Philippine primary education. Assessment is one of the subjects listed under Research Topic 1: Teaching and Learning. According to DepEd, additional research is necessary to hone the framework's

specifics because assessment is a crucial part of the teaching-learning process (Oliveira et al., 2021; Kumar et al., 2021).

IDM-CI-2020-00162, titled "Suggested Strategies in Implementing Distance Learning Delivery Modalities (DLDM) For School Year 2020-2021," is another resource. The Department of Education (DepEd) has specified that the following learning resources must be used: textbooks (TXs), Primer Lessons, activity sheets, teacher-made films, and other supplemental learning materials, as well as Open Educational Resources (OERs) (OERs). In addition, self-learning modules and primer lessons must be converted into other types of digital content. The DepEd Learning Resources Portal, DepEd Commons, DepEd Learning Management System (LMS), and numerous other DepEd-recognized LMS will make video/audio lessons, interactive/inclusive electronic SLMs (e-SLMs), and other course formats available (DO No. 39, s. 2016; Ochi, 2021).

In addition, Edmodo is a learning management system that constitutes tools and resources to manage classrooms and engage learners remotely, offering a variety of languages. Google Classroom helps classes connect remotely, communicate, and stay organized. Schoology comprises tools to support instruction, learning, grading, collaboration, and assessment. Another choice might be the Modular Object-Oriented Dynamic Learning Environment (Moodle). It is a learning platform that offers personalized learning environments where instructors design classes, engage with students, inform them of upcoming class activities, have students submit projects, take quizzes, and collaborate with other students. ICTS uses the DepEd Learning Management System (LMS) platform. As long as software enables the school to manage, document, track, and record the learners' progress, other LMSs may be employed (Addo, 2022; Cato et al., 2018).

With attention to, the Office of Instructional Development (OID) of the Education for Sustainable Living Program (ESLP) plans to replace the current paper evaluation system with an online system in the 2010-2011 school year. The research of Savio and Silver-Westrick entitled "Paperless Evaluation" revealed that online evaluations are time-saving. The professor will obtain their results as soon as the ratings are tallied, and most significantly, online technologies remove the clerical bottleneck. It also has a quicker response. The results indicate that paperless assessment provided advantages of boosting management job efficiency, saving test resources, standardizing test management, and enabling the examination of candidates. This significant result caused them to move to an online system evaluation (AbdulKareem et al., 2020; Blevis, 2018).

In the meantime, a qualitative study was carried out in the US to ascertain whether teachers' use of technology impacted their instruction, employment, and personal lives. According to research that spoke with 20 instructors, most accepted technology because they felt it would improve their students' learning experiences or because the administration encouraged them to. They said that technology improves and increases the effectiveness of learning processes. Additionally, it was discovered that the faculty extensively used educational technology. (DO No. 39, s. 2016; Pargi, 2019; Ting, 2018).

Another study compared classroom learning outcomes with and without educational technology. The findings revealed that employing technology efficiently in the classroom reduced instructional time. The development of teachers' positive attitudes toward technology integration and execution is the most essential element impacting teacher technology integration. It also came to the same result, claiming that teachers play a significant role in successful technology integration in classrooms. Thus, the success of integrating technology into teaching and learning is heavily reliant on instructors' positive perceptions of it (Ghosh & Abeywardhane, 2021; You & Huang, 2022).

The aforementioned related literature and studies have provided the researcher with valuable insights and facts. The use of paperless technology has benefits for increasing the effectiveness of work management, conserving test resources, standardizing test management, and facilitating applicant evaluation. Additionally, the paperless test assures that teachers can quickly assess students' mastery, lessens their burden, eliminates resource waste, and enhances the quality of their instruction.

As a result, from the teachers' perspective, a paperless policy implies a shift in teaching methods away from a teacher-centered approach and toward a learning environment in which learners discover and shape their knowledge through interaction with other learners. Constructivist education that puts learners and learning first can be used in a paperless classroom. However, the success of integrating technology in teaching and learning is heavily reliant on instructors' positive attitudes toward it.

3. Material and Methods

The study utilized a survey design in the context of studying the extent of utilization of paperless technology. A structured questionnaire was developed and implemented to gather data from respondents regarding their perceptions and experiences. The survey included questions that specifically targeted the extent of utilization of paperless technology, such as improved efficiency, cost savings, environmental sustainability, and enhanced teaching and learning experiences. It also inquired about respondents' current usage of paperless technology, their experiences with implementation, and any comparisons they may have had with traditional methods.

Furthermore, the survey design aimed to collect both quantitative data through rating scales and qualitative data through open-ended questions, providing a comprehensive understanding of extent of utilization of paperless technology in an educational context. Once the data was collected, appropriate analysis techniques were employed to interpret the results and draw meaningful conclusions about the advantages of paperless technology.

The quantitative approach in studying the extent of utilization of paperless technology involved collecting and analyzing numerical data to examine the extent and statistical significance of those benefits. This approach focused on quantifiable variables and employed statistical methods to analyze the data.

In the context of studying the utilization of paperless technology as a summative assessment or examination tool, a quantitative approach involved gathering numerical data related to specific outcomes, such as student performance or time efficiency. For example, the researcher collected data on the average scores of students who took paperless exams compared to those who took traditional paper-based exams. They also collected data on the time taken to administer and grade paperless exams compared to traditional methods.

Quantitative research typically involved designing surveys or experiments to collect data from a sample of respondents. The researcher used standardized questionnaires or tests to gather information, and statistical techniques were employed to analyze the data and draw conclusions. The results obtained from the quantitative approach provided objective measurements and statistical evidence on the extent of utilization of paperless technology, allowing for generalizations to be made to a larger population.

A quantitative design, specifically a descriptive survey, was employed in the study to examine the extent of utilization of paperless technology. Numerical data was collected to provide a systematic and objective analysis of the advantages of adopting paperless technology in educational settings. The descriptive survey design aimed to describe and document the respondents' perceptions of the qualitative benefits associated with paperless technology, such as improved efficiency, cost savings, environmental sustainability, and enhanced teaching and learning experiences.

To gather data, a structured questionnaire with closed-ended questions was developed, allowing for easy quantification and statistical analysis. The questionnaire was designed to assess respondents' extent of utilization of paperless technology. The collected data consisted of respondents' responses to the survey questions and was subjected to quantitative analysis using statistical techniques. This analysis involved summarizing and organizing the data, calculating frequencies and percentages, and identifying patterns or relationships among variables.

The adoption of a quantitative design, specifically a descriptive survey, enabled the researcher to collect empirical evidence and objectively measure and evaluate the extent of utilization of paperless technology. The results obtained from this approach provided a quantitative understanding of the advantages of paperless technology, facilitating generalizations and comparisons across the sample population.

Overall, the quantitative approach in studying the extent of utilization of paperless technology provided a systematic and objective way to measure and analyze the advantages of adopting such technology in educational settings.

It is appropriate for understanding how various circumstances and scenarios are obtained among the subjects. It represented the gathering of information about the current situation. It offered the worth of facts and concentrated attention on the most crucial aspects of the story. The acquired data were tabulated, analyzed, and evaluated to address the study's objectives.

4. Results and Discussion

4.1 Extent of Utilization of Paperless Technology

Table 3 presented the findings regarding the extent of utilization of paperless technology in various aspects, including grade management, test bank management, and user management. The data collected and analyzed revealed the mean values for each aspect, providing insights into the extent of utilization of paperless technology.

In terms of grade management, the data showed a mean of 3.10, indicating an extremely high utilization of paperless technology. This suggests that participants perceived the utilization of paperless technology was extremely useful in managing grades. It implies that paperless technology facilitated efficient and effective grade management processes, potentially streamlining the grading process and providing better organization and accessibility of grading information.

On the other hand, in test bank management, the data revealed a mean of 3.24, signifying the extremely high utilization of paperless technology. Respondents perceived the utilization of paperless technology was extremely useful and advantageous in managing test banks. This implies that the utilization of paperless technology facilitated the organization, storage, and retrieval of tests or assessments, making it easier for teachers to manage and administer tests efficiently.

Lastly, user management obtained a mean of 2.32, the result indicates that the respondents are moderately low. This suggests that participants perceived the utilization of paperless technology in user management was moderately useful. User management may refer to aspects such as user account creation, access control, or user permissions within the paperless technology system. The lower mean value suggests that participants might have encountered challenges or perceived limitations in effectively managing user-related tasks using paperless technology.

These findings provide insights into the utilization of paperless technology in specific areas related to education. While grade management and test bank management state that the extent of utilization of paperless technology was extremely high, user management exhibited a disagree result. These results can inform educators and policymakers about the potential advantages of adopting the implementation of paperless technology in different areas of education and guide decision-making regarding its utilization.

The table below summarizes the respondents' responses to the various aspects of paperless technology. According to the table, respondents place an extremely high value on the utilization of paperless technology's ability to test bank management and a very high description of grade management; however, they express a moderately low level of satisfaction and usage in the areas of user management, indicating that there may be room for improvement and additional training.

Table 2: Extent of Utilization of Paperless Technology

	Mean	Description
A. Grade Management		
1. I can add scores automatically.	3.05	Very high
2. I can query scores easily.	3.05	Very high
3. I can delete and recover scores.	2.95	Very high
4. I can modify scores.	3.35	Extremely high
Average	3.10	Very high
B. Test Bank Management		
1. I can query test questions.	3.32	Extremely high
2. I can modify test questions.	3.78	Extremely high
3. I can easily add/import test questions.	3.35	Moderately low
4. Randomly generate test questions.	2.51	Very high
Average	3.24	Extremely high
C. User Management		
1. I can add and delete users.	2.31	Moderately low
2. I can query users.	2.46	Very high
3. I can modify user information.	2.22	Moderately low
4. I can set user restrictions.	2.30	Moderately low
Average	2.32	Moderately low

5. Recommendations

The study highlights the extent of utilization of paperless technology for assessment and exams, which has numerous implications for educational progress. The Department of Education should formulate policies and guidelines that promote the utilization of paperless technology while also considering frugality and reducing teachers' burdens. This should be accompanied by a global network of support and enriching training opportunities for teachers to harness the virtuous potential of paperless technology. The seamless integration of paperless technology into the teaching and learning process requires meticulous planning, unfettered access to digital devices, and abundant bandwidth, coupled with a steadfast evaluation regimen to safeguard its enduring triumph. Further scholarly exploration of paperless technology's impact on education, particularly assessment and examination, can engender the development of more efficacious and streamlined evaluation tools.

6. Conclusion

Based on the data gathered, the study has led to several important conclusions regarding the extent of utilization of paperless technology in classroom management. Overall, the use of paperless technology has been found to yield highly positive outcomes.

One area that particularly stood out for its success in utilizing paperless technology was test bank management. The results indicate that implementing paperless solutions in managing test banks resulted in exceptional outcomes. This suggests that

digital tools and platforms effectively streamlined the process of creating, organizing, and administering tests, leading to improved efficiency and convenience for both teachers and students.

Similarly, grade management also showed very high levels of success when incorporating paperless technology. The findings suggest that transitioning to digital platforms for managing grades activities had significant benefits. This implies that digitizing grade records and leveraging technology for organizing and facilitating classroom tasks enhanced overall efficiency and organization, contributing positively to the educational process.

In contrast, the study revealed that user management, which involves managing user accounts and access permissions, yielded relatively lower results when using paperless technology. This suggests that there may be challenges or limitations in effectively implementing paperless solutions in this area. Further investigation is required to identify the specific factors that contributed to the lower performance in user management, such as usability issues, inadequate training, or other barriers that hindered the successful adoption of paperless technology.

In summary, the study concludes that the utilization of paperless technology in classroom management brings about highly positive results. The utilization of paperless solutions in test bank management and grade management demonstrated significant benefits. However, further attention and improvement are needed in the area of user management to address the observed lower results. These findings highlight the potential of paperless technology to enhance various aspects of classroom management, while also emphasizing the importance of addressing any challenges or limitations to ensure its successful integration across all areas.

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Conflict of Interest Statement

The author declares no conflicts of interest.

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