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The Utilization of Educational Technology System and The Tertiary Students' Learning Performance of Selected Private Schools in Metro Manila: A Basis for Developing Professional Development Program

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ABSTRACT

This study investigated the relationship between the utilization of educational technology (EdTech) systems and the learning performance of tertiary students in selected private schools in Metro Manila, serving as the basis for a proposed professional development program. Employing a descriptive quantitative research design, data were gathered from 120 faculty and student respondents using a structured survey questionnaire distributed online. Statistical tools such as frequency, percentage, weighted mean, Pearson's correlation, t-test, and ANOVA were applied to analyze the data. Findings revealed that faculty respondents were predominantly experienced educators, with most holding bachelor's or master's degrees, while student respondents were largely young, female, and in their third or fourth year of study. In terms of EdTech utilization, Google Classroom emerged as the most highly utilized platform, followed by Canvas LMS, while NEO LMS showed limited engagement. Students consistently rated their engagement with EdTech systems slightly higher than faculty, particularly in creativity, collaboration, communication, and technology literacy, with technology literacy receiving the highest ratings. Results confirmed a significant relationship between the extent of EdTech utilization and students' learning performance, while no significant differences were observed between faculty and student assessments across most demographic profiles. Constraints identified included limited technological resources and unstable network connectivity, with both groups emphasizing the need for improved infrastructure, technical support, and training. Based on these findings, a comprehensive faculty development program was proposed to enhance digital integration, professional competence, and equitable access to technology, thereby fostering improved student engagement and performance in higher education.

Keywords: *educational technology, EdTech systems, learning performance, tertiary students, private schools, Metro Manila, faculty development program, Google Classroom, Canvas LMS, Moodle, NEO LMS, technology literacy, student engagement.*

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INTRODUCTION

The importance of using educational technology (EdTech) system has increased in the field of education. Knezek and Christensen indicate that educational technology (EdTech) system or tools are indispensable in improving students' learning experiences. The rapid advancement of technology has significantly transformed the teaching landscape. Educational Technology (EdTech) system or tools like Learning Management Systems (LMS), online collaboration tools, and interactive multimedia resources have reshaped the way students engage with learning content. These EdTech tools and systems have fundamentally altered students' learning process, enabling them to interact with subject matter in dynamic and interactive ways. The purpose of this study is to look at how these EdTech system or tools affect students' academic performance across different educational settings.

Innovative ways of teaching and learning have been made possible by the increase in digital gadgets and internet applications. There are many advantages that come with educational technology (EdTech) system or tools such as improved access, personalized education experiences and instant response. However, there is interest and debate on whether this has led to successful student achievement or not.

Teachers, policymakers and scholars must therefore appreciate the influence of educational technologies (EdTech) on student performance. There is a need to consider how effectively these tools are enhancing students' development as educational facilities keep on investing in IT infrastructure. We can design empirically grounded approaches through understanding the meaning behind utilization patterns, challenges and outcomes related with such platforms for optimization of pedagogical practices.

Education is essential for the survival and prosperity of society as it is a social institution that caters to the demands of society. The system should be broad, sustainable, and excellent, and it should continually adapt to address the difficulties of the rapidly changing and unpredictable globalized world. In a journal publication, Peter Serdyukov states that School teachers, college professors, administrators, researchers, and policymakers are required to improve the theory and practice of teaching and learning, together with other areas of the educational system, to guarantee that all students are well-prepared for life and work.

Many studies pointed out faculty's quality as most important measure in determining success of educational institution. It has been always about faculty's competence. Although the faculty attend and graduate from a teacher program, for the most part they are inadequately equipped to facilitate learning with today's students and today's world: a world of technology, graphics, multi-tasking, quick information, and relationships. students are immersed in a world of instant connectivity, instant gratification and advanced visual stimulation.

On the other hand, teaching with technology is perplexing in its way and structure due to the revolutionary challenges present in newer technologies. However, most of technologies are considered advanced in the learning process. Educational technology (EdTech) system means utilizing both physical equipment (gadget), programming and theoretic instruction to encourage learning and improving execution

by making, utilizing, and managing appropriate technological procedures and assets. Educational technology (EdTech) system can be a tool in the minds of students and pedagogical resources specially building connections with the younger generations.

Educational technology (EdTech) is the study and ethical practice of facilitating learning and improving performance by creating, using and managing appropriate technological processes and resources. There are three (3) major educational theories, such as Behaviorism, Cognitivism and Constructivism which are widely implemented in education and greatly linked to the development and utilization of the Educational technology (EdTech).

According to Frederic Skinner one of the founders of American new behaviorism, further developed the behavior theory, rewards and punishment can change one's learning performance. Researchers and scholars confirmed that Behaviorism has greatly promoted and effectively implemented in programmatic instruction and has strongly promoted and widely applied in computing-assisted-instruction and the development of Educational technology (EdTech).

In today's digital age, Educational technology (EdTech) system has become integral tools in facilitating learning experiences. With the rapid advancement of technology, educational institutions are increasingly incorporating digital tools into their teaching methodologies to enhance student learning outcomes. In the context of Metro Manila schools, the utilization of system has gained significant attention as educators seek to adapt to the evolving needs of 21st-century learners.

Learning management systems have been described as "learning platforms", "distributed learning systems", "course management systems", "content management systems", "portals" and ''instructional management systems'', and are defined as being a "group of course or subject management and pedagogical tools that provides a way of building, delivering and managing online learning environments". Virtual learning environments or LMS's include interactive technology in classrooms which can create active learning contexts through various levels of interaction.

This study aims to explore the relationship between the utilization of Educational technology (EdTech) system and students' learning performance in selected schools across Metro Manila. By examining this relationship, the study seeks to provide valuable insights into how technology integration impacts student academic achievement and overall learning outcomes.

In order to achieve these objectives in modern technological societies, academic institutions, particularly in higher education, are integrating Educational technology (EdTech) system and therefore faculty are exploring new ways to apply these tools to support their conventional teaching methods. Research has indicated that they can be useful in this regard by giving lecturers ideas when they are at a loss for concepts during a lecture so they can make use of Educational technology (EdTech) system resources more effectively. learning management systems (LMS) have been shown to have the potential to help support such efforts.

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Furthermore, this research serves as a basis for developing a comprehensive professional development program for educators aimed at enhancing their capacity to effectively integrate Educational technology (EdTech) into their teaching practices. By understanding the challenges and opportunities associated with technology integration, educators can be better equipped to meet the diverse needs of their students and foster a more engaging and dynamic learning environment.

Through a thorough examination of the utilization of Educational technology (EdTech) system and its impact on student learning performance, this study aims to contribute to the ongoing discourse on effective teaching methodologies in the digital age. By bridging the gap between theory and practice, the findings of this research can inform evidence-based strategies for improving educational practices and ultimately enhancing student academic success.

Background of the Study

In recent years, the integration of Educational technology (EdTech) system into the classroom has become increasingly prevalent as educators seek innovative ways to enhance student learning experiences. This trend is particularly notable in Metro Manila schools, where educational institutions are striving to keep pace with the rapid advancements in technology and meet the evolving needs of students in the digital age.

Educational technology (EdTech) system has the ability to enhance relationships between faculty and students. When faculty effectively integrate technology into subject areas, faculty grow into roles of adviser, content expert, and coach. Educational technology (EdTech) system helps make teaching and learning more meaningful and fun. Educational technology (EdTech) system also helps the creation of personal learning networks in a personal learning environment on a global scale. This makes partly possible the emancipation of learners previously oppressed, within the system of formal education. Learners can thus compose their curriculum themselves. The use of the concept of personal learning environment through the utilization of Educational technology (EdTech) system is closely associated with the concept of self-organized learning of students and it can be promoted by the adoption of Educational technology (EdTech) system utilization. It could be concluded that Educational technology (EdTech) system utilization can influence and enhance effective learning of the students, for the country to become very competitive in the globalized world that we have today.

The utilization of Educational technology (EdTech) system or tools, such as online learning management systems, interactive whiteboards, and educational apps, holds immense potential for transforming traditional teaching methodologies and enriching the learning process. These digital tools offer opportunities for personalized learning experiences, interactive engagement, and access to a wealth of educational resources beyond the confines of the physical classroom.

Despite the growing popularity of Educational technology (EdTech) integration, there remains a need to examine its impact on student learning performance in the context of Metro Manila schools. While anecdotal evidence suggests that technology-enhanced teaching practices can lead to improved academic

outcomes, empirical research is essential to provide a deeper understanding of the relationship between technology utilization and student achievement.

Moreover, as educators navigate the complexities of integrating technology into their teaching practices, there is a pressing need for targeted professional development programs to support their efforts. By equipping teachers with the necessary skills and knowledge to effectively leverage Educational technology (EdTech) system or tools, schools can maximize the potential benefits of technology integration and optimize student learning experiences.

Against this backdrop, this study seeks to investigate the utilization of Educational technology (EdTech) systemand its influence on the learning performance of students in selected schools across Metro Manila. By examining the extent to which technology integration impacts student academic achievement, the study aims to provide valuable insights that can inform the development of tailored professional development programs for educators.

Through a comprehensive analysis of the current landscape of Educational technology (EdTech) integration in Metro Manila Tertiary schools and its implications for student learning outcomes, this research endeavors to contribute to the ongoing discourse on effective teaching practices in the digital age. By identifying best practices and addressing challenges associated with technology integration, the study aims to lay the groundwork for the design and implementation of evidence-based strategies aimed at enhancing student academic success.

Issue of unintended consequences of use of technology in classroom is important because unintended consequences can cause disruption in class room and negate the institutional policies regarding strategic direction and intervention in teaching and learning process. Current literature on the use of e-learning for teaching focuses on factors which increases the effectiveness of e-learning but there is very little research on unintended consequences of e-learning, particularly in regard to developing countries. The present research seeks to fill in this gap in the research. This research investigates the consequences of the use of technology during classroom activities in higher education institutions of Metro Manila when the students are expected to do classwork and attend to their work in the college.

To bridge the gap in the educational system of the Philippines, a holistic strategy is needed to tackle systemic challenges and utilize e-learning and Educational technology (EdTech) resources effectively. The Philippines can increase educational results for all children by investing in teacher training programs that provide educators with the essential skills and expertise to properly use technology into their classrooms. Expanding internet connectivity and reducing the digital gap are crucial to provide fair access to online resources and learning opportunities. By collaborating with government agencies, educational institutions, and commercial groups, the Philippines can develop a more inclusive and technologically sophisticated educational system to equip students for success in the 21st century.

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Theoretical Framework

The researcher will be using Constructivism and Technological Pedagogical Content Knowledge (TPACK) for the study. TPACK is a framework that integrates three types of knowledge essential for effective teaching with technology: technological knowledge (TK), pedagogical knowledge (PK), and content knowledge (CK). Developed by Punya Mishra and Matthew Koehler in 2006, TPACK recognizes the complex interactions between these knowledge domains and emphasizes the need for teachers to integrate them seamlessly in their instructional practices.

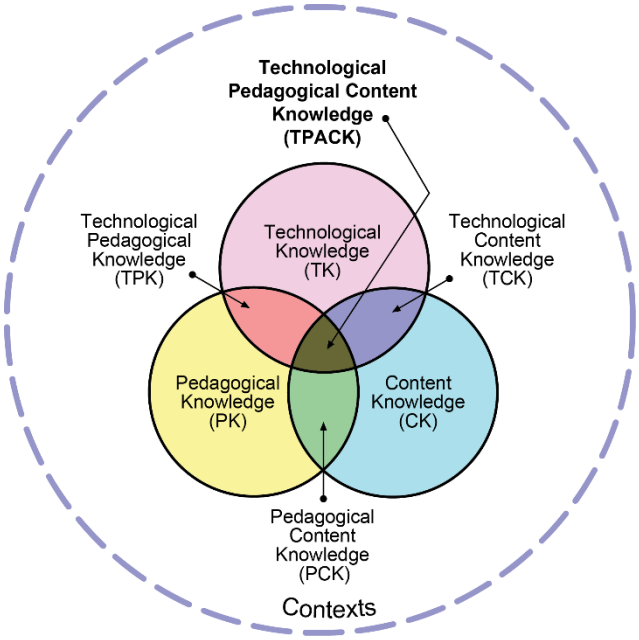

Figure 1: **TPACK framework (graphic from http://tpack.org/)**

The three knowledge domains of TPACK are:

1. Technological Knowledge (TK): This refers to knowledge about the use of technology tools and resources, including hardware, software, and digital platforms.

2. Pedagogical Knowledge (PK): Pedagogical knowledge encompasses knowledge of teaching strategies, instructional methods, and classroom management techniques.

3. Content Knowledge (CK): Content knowledge pertains to a deep understanding of the subject matter being taught, including concepts, principles, and skills within a specific discipline.

TPACK emphasizes the importance of understanding how these knowledge domains intersect and inform one another. Effective teaching with technology requires educators to integrate their technological,

pedagogical, and content knowledge to design meaningful learning experiences that leverage the affordances of technology while addressing the learning goals and needs of their students.

Constructivism, a prominent theory in education, posits that learners actively construct their understanding of the world through experiences, interactions, and reflection. This theory emphasizes the importance of student-centered learning environments that encourage inquiry, collaboration, and critical thinking. In the context of Educational technology (EdTech) integration, constructivism underscores the role of technology as a tool for facilitating active engagement and knowledge construction among students.

Aligned with constructivism is the Technological Pedagogical Content Knowledge (TPACK) framework, which emphasizes the intersection of three essential components: technology (T), pedagogy (P), and content knowledge (CK). TPACK proposes that effective teaching with technology requires a deep understanding of how these components interact and complement each other. Educators must possess not only proficiency in using technology, but also pedagogical strategies tailored to the content being taught.

In the context of this study, the theoretical framework of constructivism and TPACK provides a lens through which to explore the relationship between the utilization of Educational technology (EdTech) system or tools and students' learning performance in higher education institutions in Metro Manila. By grounding the study in constructivist principles, the research acknowledges the active role of students in constructing their knowledge and understanding through technology-mediated learning experiences.

Moreover, the TPACK framework offers a comprehensive perspective on the complex interplay between technology, pedagogy, and content knowledge. By examining how educators integrate technology into their teaching practices while considering the specific content areas being addressed, the study can assess the effectiveness of technology integration in enhancing student learning outcomes.

Furthermore, by incorporating the principles of constructivism and TPACK into the design of professional development programs, educators can be better equipped to leverage Educational technology (EdTech) system effectively. By fostering a deeper understanding of how technology can support student-centered learning experiences and enhance pedagogical approaches, these programs can empower educators to create more dynamic and engaging learning environments that optimize student learning performance.

Overall, the theoretical framework of constructivism and TPACK provides a robust foundation for investigating the utilization of Educational technology (EdTech) system and its impact on student learning performance in Metro Manila schools. By embracing these theoretical perspectives, the study aims to contribute valuable insights that can inform the development of evidence-based strategies for improving teaching practices and enhancing student academic success in the digital age.

Conceptual Framework

The conceptual framework for this study seeks to provide a structured understanding of the utilization of Educational technology (EdTech) system and the students' learning performance of selected

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higher education institutions in Metro Manila. The framework for this study integrates several key components to explore the utilization of Educational technology (EdTech) systemand its impact on students' learning performance in selected higher education institutions in Metro Manila. The framework encompasses the following elements.

Educational technology (EdTech) System: This component represents the various digital tools and resources used within the educational context, including online learning management systems, interactive whiteboards, educational apps, and other technology-enabled teaching methods.

***Technology Integration Strategies*:** This component encompasses the methods and approaches used by educators to incorporate Educational technology (EdTech) system or tools into their teaching practices. It includes aspects such as instructional design, digital content creation, blended learning models, and differentiated instruction tailored to the needs of diverse learners.

Student Learning Performance: This component refers to the academic achievement and learning outcomes of students, including measures such as grades, standardized test scores, comprehension, critical thinking skills, and overall engagement with course material.

Pedagogical Approaches: This component encompasses the instructional strategies and teaching methodologies employed by educators to facilitate learning experiences using Educational technology (EdTech) platforms. It includes elements of constructivist pedagogy, active learning, collaborative learning, and personalized instruction tailored to individual student needs.

Professional Development Programs: This component represents initiatives aimed at enhancing educators' skills and knowledge in integrating Educational technology (EdTech) platforms effectively. Professional development programs may include workshops, training sessions, mentoring, peer collaboration, and ongoing support to help educators develop the necessary competencies for leveraging technology in their teaching practices.

Contextual Factors: This component acknowledges the contextual influences that may impact the utilization of Educational technology (EdTech) platforms and students' learning performance. Contextual factors may include school policies, resources, infrastructure, administrative support, teacher attitudes and beliefs, student demographics, and socio-economic background.

By examining the interactions among these components within the specific context of selected higher education institutions in Metro Manila, the study aims to elucidate the relationships between technology utilization, pedagogical approaches, professional development initiatives, and student learning performance. Through a comprehensive analysis of these interrelated factors, the study seeks to inform the development of evidence-based strategies for improving educational practices and fostering student academic success in the digital age.

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In this study, the researcher uses the Input, Process, and Output framework. In an expert from business.adobe.com, Input-process-output (IPO) — also called an IPO model or IPO diagram — is a tool used to describe a workflow, the flow of information, or activities within a system. An IPO diagram helps to identify all the factors that influence a process and all the process's outcomes, and it gives you a structured approach to analyzing and improving the system.

The IPO diagram compose of three columns listing inputs on the left, describing the process in the middle, and then tracking the outputs on the right. By diagramming a process in this way, it is helpful to the audience to visualize the flow of the study.

First, listing all the inputs that describes the faculty and student - respondents particulars including their demographic profile of the in terms of (1) Age, (2) Sex, (3) Highest Educational Attainment, and (4) Years of using educational technology system; the extent of the utilization of Educational technology (EdTech) Platforms of the faculty / tertiary students in terms of: (1) Canvas LMS, (2) Google Classroom LMS, (3) LMS365 (Microsoft), (4) Moodle LMS, and (5) NEO LMS; the level of the tertiary students' learning performance in terms of: (1) Creativity, (2) Critical Thinking, (3) Collaboration, (4) Communication, and (5) Technology Literacy.

Process can be seen in the middle of the diagram where the researcher will: gather of data though: (1) Survey Questionnaire, and (2) Instructional Interview; do statistical treatment through the use of: (1) Percentage, (2) Weighted Mean, (3) Pearson-R, (4) T-test, and (5) ANOVA; and conduct analysis and interpretation of data.

Finally, tracking the result of the IPO Model is on the right of the diagram. Output can include results, products, or outcomes produced by the processes. In this case the last stage of the research paradigm is that it aims to propose the Faculty Development Program using Educational Technological Systems/ Tools in Teaching. This can give positive emphasis to the development of the latest teaching methods utilizing Educational technology (EdTech) System for effective education. Educational technology (EdTech) makes the teaching process scientific, objective, clear, simple, easy, interesting, and effective. Educational technology (EdTech) gives proper guidance to solve teaching problems.

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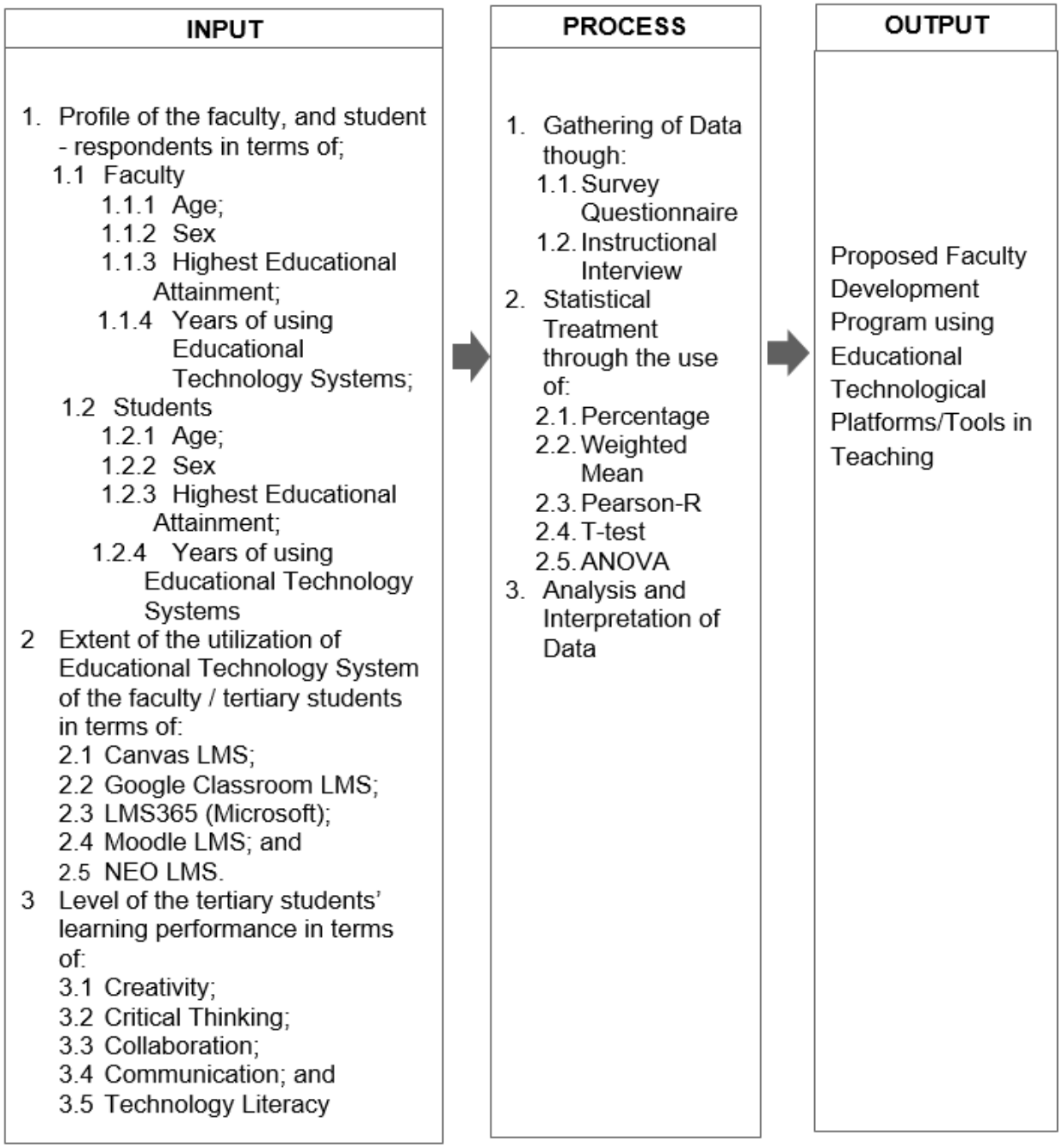

Figure 2: **Paradigm of the Study**

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Objectives

This study aimed to explore the relationship between the utilization of Educational technology (EdTech) system and students' learning performance in selected higher education institutions across Metro Manila.

Specifically, the study sought to answer the following questions:

1. What is the demographic profile of faculty and student - respondents in terms of;
   1.1. Faculty
      1.1.1. Age;
      1.1.2. Sex
      1.1.3. Highest Educational Attainment; and
      1.1.4. Years of using Educational Technology Systems?1
   1.2. Students
      1.2.1. Age;
      1.2.2. Sex
      1.2.3. Highest Educational Attainment; and
      1.2.4. Years of using Educational Technology Systems?
2. What is the extent of the utilization of Educational Technology Systems of the faculty / tertiary students in terms of:
   2.1. Canvas LMS;
   2.2. Google Classroom LMS;
   2.3. LMS365 (Microsoft);
   2.4. Moodle LMS; and
   2.5. NEO LMS?
3. What is the level of the tertiary students' learning performance in terms of:
   3.1. Creativity;
   3.2. Critical Thinking;
   3.3. Collaboration;
   3.4. Communication; and
   3.5. Technology Literacy?
4. Is there a significant relationship between the extent of the utilization of Educational Technology System and the level of the tertiary students' learning performance?
5. Is there a significant difference on the assessment of the faculty and tertiary students in the use of Educational Technology Systems?
6. Is there a significant difference on the extent of utilization of the Educational Technology System of the faculty and student - respondents when grouped according to their profile?
7. What are the constraints encountered by the respondents in the use of Educational Technology Systems?
8. What are the suggested solutions to the constraints encountered by the respondents in using the educational technological systems?

9. What faculty development program can be proposed in using and teaching with educational technological systems based on the result of the study?

Null Hypotheses

1. There is no significant relationship between the level of the utilization of Educational Technology Systems and the level of the tertiary students' learning performance.

2. There is no significant difference between the assessment of the faculty and tertiary students in the use of Educational Technology Systems**.**

3. There is no significant difference in the extent of utilization of the Educational Technology System of the faculty and student - respondents when grouped according to their profile.

Scope and Delimitation of the Study

This study focused on the utilization of Educational technology (EdTech) system and the tertiary students' learning performance of selected higher education institutions in Metro Manila. Thus, it limits to other variables outside of its main objective that would somehow affects the study.

The study will focus on the Academic Year 2023 – 2024 at selected higher education institutions in Metro Manila.

Descriptive method was utilized in this study as it aims to determine relationship between the utilization of Educational technology (EdTech) systems and tertiary students' learning performance in selected higher education institutions in Metro Manila.

The respondents involved in this study are 240 respondents, consists of 165 students and 75 faculties from selected higher education institutions in Metro Manila. They will be chosen to determine the effectiveness of utilization of Educational technology (EdTech) systems and their learning performance.

The data of this research were delimited to the respondents' perception in answering the survey questionnaire since this study will focus only in proposing faculty development program in using educational technological systems/tools that can be used in teaching.

By acknowledging these scope and limits, the study aims to provide valuable insights within its defined parameters, contributing to the understanding of the relationship between the utilization of Educational technology (EdTech) systems and students' learning performance in selected higher education institutions in Metro Manila.

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Significance of the Study

The purpose of this study is to propose faculty development program in using educational technological systems/tools that can be used in teaching by assessing its effectiveness and determining the challenges encountered. This study will be significant to the following:

Higher Education Institutions. In today's digital age, educational institutions are increasingly integrating technology into their teaching methods. Understanding how these technologies impact students' learning performance is crucial for educators to adapt their practices effectively and stay relevant in a rapidly evolving educational landscape.

Teachers/Instructors/Professors. The findings of the study can serve as a basis for developing tailored professional development programs for educators. These programs can provide teachers with the necessary skills and knowledge to effectively integrate Educational technology (EdTech) systems into their teaching practices, ultimately leading to improved student outcomes.

Students. The study addresses the pressing need to improve students' learning outcomes in the context of modern educational environments. By investigating the utilization of Educational technology (EdTech) systems, it aims to identify effective strategies that can enhance learning performance among students.

LGU or other Government Officials. Metro Manila, like many urban areas, faces various challenges in its educational system, including large class sizes, resource constraints, and diverse student populations. Educational technology (EdTech) has the potential to address some of these challenges by offering personalized learning experiences, fostering student engagement, and facilitating access to educational resources.

Future Researcher. The result of the study can help other researchers by giving them meaningful insights and rich information in conducting further study similar or related to this problem and those not covered by this study. It also contributes to the academic literature on Educational technology (EdTech) by providing empirical evidence on the relationship between the use of Educational technology (EdTech) and learning performance of students. It may inspire further research and discussions in the field.

In summary, the research's significance lies in its potential to drive positive changes in teaching practices, curriculum development, and educational policies, ultimately benefiting higher education institutions in Metro Manila and contributing valuable knowledge to the broader field of higher education.

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Definition of Terms

In order to have a clear understanding of the study, the following terms are defined operationally:

Canvas Learning Management System (LMS). Canvas LMS is a web-based learning management system, or LMS. It is used by learning institutions, educators, and students to access and manage online course learning materials and communicate about skill development and learning achievement.

Collaboration. Collaboration is about working together to reach a goal and combining different and complementary skills, expertise and experience. As the world becomes more and more connected, the skill of collaboration becomes more vital for the workforce as well as for members of society (Lamb, 2023).

Communication. The skill of communication has always been vital but in the 21st century, the ability to express thoughts clearly, articulate opinions, give coherent instructions and motivate others through speech is increasingly important. Communication is about sharing thoughts, questions, ideas and solutions effectively – understanding that people and groups from different cultures, ages and backgrounds require different communication styles and methods. Learning how to leverage current and emerging technologies to communicate is vital for professional and private success (Lamb, 2023).

Constraints. Constraints refer to limitations or restrictions that impact the execution, design, or outcome of a project, process, or system. These limitations can arise from various factors, including resource availability, time constraints, budgetary limitations, technical considerations, organizational policies, legal requirements, and environmental factors. Constraints set boundaries or parameters within which activities or solutions must operate, often influencing decision-making and shaping the overall approach to a problem or task.

Creativity. This 21st century skill is experiencing a boom as technology opens up the ways in which we can be creative and demands that we exercise the skill. Creativity isn't limited to artistic endeavors, it's about innovation and invention, and is available to everyone. In the competitive 21st century, an innovative and creative approach is essential for personal and professional success. Critical and creative thinking skills are closely linked – after using critical skills to analyse a situation, creative thinking is applied to find an original approach (Lamb, 2023).

Critical thinking. Critical thinking is all about looking at problems in a new way and analyzing the "how" and "why" of an issue. These types of thinking skills examples include the ability to compare evidence, evaluate claims and consider information to make sensible decisions (Lamb, 2023).

Educational technology (EdTech). Educational technology (EdTech), often abbreviated as "EdTech," refers to the integration of technology tools, resources, and practices into the educational process to facilitate teaching and learning. It encompasses a wide range of technologies and methodologies designed to enhance educational experiences, improve learning outcomes, and streamline educational administration. Educational technology (EdTech) can take various forms, including hardware devices, software

applications, digital content, and online systems, and it is used across different educational levels and settings, from early childhood education to higher education and professional training.

Educational technology (EdTech) System. Educational technology (EdTech) (EdTech) system refers to an online or digital platform that provides educational services or tools to students, teachers, or educational institutions. It uses technology to deliver educational content, assessments, and other learning-related services.

E-Learning Applications. E-learning applications, also known as electronic learning applications, are software tools or systems designed to facilitate online learning experiences. These applications leverage digital technology to deliver educational content, facilitate communication and collaboration, and provide interactive learning experiences to users. E-learning applications can vary widely in terms of functionality, target audience, and educational objectives, but they generally share common features aimed at enhancing the learning process in a digital environment.

Faculty Development Program. A faculty development program (FDP) is a structured initiative designed to support the professional growth, skill enhancement, and career advancement of faculty members in academic institutions. These programs are implemented by universities, colleges, and other educational organizations to provide faculty members with opportunities for continuous learning, professional development, and improvement in teaching, research, and leadership skills.

Google Classroom Learning Management System (LMS). Google Classroom is a cloud-based LMS that is free to use for educational institutions. It integrates with other Google products, such as Google Drive, Google Docs, and Google Forms, to make it easy for teachers to create and manage assignments, grade student work, and collaborate with students.

Learning Management System (LMS). A Learning Management System (LMS) is a software application or web-based technology used to manage, deliver, and track educational courses and training programs. It provides educators, trainers, and administrators with tools to create and organize learning content, communicate with learners, administer assessments, monitor learner progress, and generate reports.

LMS365 Learning Management System (LMS). LMS365 is a cloud-based Learning Management System built directly into Microsoft 365 and Teams. an extra tool on top of the existing Microsoft 365 environment, making it possible to create, deliver, track, and manage online training and development programs within current Microsoft 365 toolset.

Moodle Learning Management System (LMS). The word Moodle is an acronym for Modular Object-Oriented Dynamic Learning Environment, which is mostly useful to programmers and education theorists. Moodle is a Learning Management System (LMS) used to manage, deliver and measure training and learning online. An online Learning Management system which enables educators to create their own private website filled with dynamic courses that extend learning, anytime, anywhere.

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NEO Learning Management System (LMS). NEO is a world-class, award-winning learning management system (LMS) for schools and universities. The platform is known for delivering a great user experience while incorporating all the essential tools schools need to support effective teaching and learning.

Technology Literacy. Technology literacy is the ability to use, comprehend, manage, and analyze technology safely, effectively, and responsibly. This literacy includes using technology to evaluate, create and integrate information.

LITERATURE REVIEW

In a journal titled Impact of Educational Technology Integration on Tertiary Students' Learning Performance: A Case Study in Selected Universities in the Philippines, Santos, M. L., & Reyes, J. P. (2019) reported that this study examines how integrating educational technology influences learning performance of tertiary students selected Philippine colleges or universities; studies show whether Educational technology systems used by students affect their academic outcomes and provide suggestions related to successful implementation strategies and it has also affected positively the tertiary students' learning performance among premier universities in the Philippines. Students who engaged with Educational technology system like learning management systems and multimedia resources were more actively engaged than those located within traditional classrooms and had better grades.

Cruz, R. B., & Hernandez, L. F. (2018). Enhancing Tertiary Students' Learning Performance through Educational Technology Systems: Perspectives from Philippine Higher Education Institutions. The article primarily explores how educational technology systems can be harnessed to boost the learning performance of tertiary students in Philippine higher education institutions. It analyzes the techniques, obstacles, and consequences connected with fusing Educational technology into diverse school environments. Results from several institutions showed better student performance caused by proper incorporation of technology as part of instruction and learning including increased student's satisfaction, retention rates, and academic achievement among others.

In this literature by Garcia, A. S., & Reyes, E. D. (2018). Exploring the Relationship between Educational Technology Utilization and Tertiary Students' Academic Achievement: Insights from Philippine Universities, the relationship between the utilization of Educational technology and the academic achievement of tertiary students in Philippine universities is examined. This also provides an insight into what affects the effectiveness of integrating new technology in education and how such impacts student learning outcomes. Students who engaged effectively through technological tools such as e-resources and interactive multimedia demonstrated more comprehension, retention, and performance in tests than those in classroom situations.

This journal, Dela Cruz, J. F., & Santos, L. M. (2020). Assessing the Impact of Educational Technology System on the Learning Performance of Tertiary Students in the Philippines, deploys the mixed methods approach to find out the influence of Educational technology systems on the learning achievements of university learners in the Philippines. It merges quantitative analysis with qualitative thoughts to present a thorough comprehension of how Educational technology employment interrelates with students' results. The research found that frequent use of educational technology tools is associated with higher academic performance while students' personal experiences in learning are enhanced through incorporation of such technologies, and also these tools consequently help them have better understanding.

This article by Reyes, A. B., & Lim, M. S. (2019) entitled Understanding the Influence of Educational Technology System on Tertiary Students' Learning Performance: focuses on understanding the influence of Educational technology systems on the learning performance of tertiary students in universities located in Metro Manila. It examines the specific mechanisms through which Educational technology impacts student learning outcomes in urban academic environments. Findings indicated that the effective integration of technology in-to teaching and learning processes led to enhanced student engagement, collaboration, and academic achievement in urban academic environments.

Santos, R. L., & Cruz, M. A. (2018). Integration of Educational technology in Philippine Higher Education: Effects on Tertiary Students' Learning Outcomes. This investigates the integration of Educational technology in Philippine higher education institutions and its effects on tertiary students' learning outcomes. It explores the implications of incorporating Educational technology tools and resources into the curriculum for improving student achievement.

Aguilar, E. J., & Del Rosario, L. P. (2019). Effectiveness of Educational Technology Integration on Tertiary Students' Learning Performance: A Comparative Analysis of Public and Private Universities in the Philippines on the effectiveness of Educational technology integration on tertiary students' learning performance in public and private universities in the Philippines. It examines the differences in Educational technology utilization and its impact on student outcomes across different institutional contexts.

This article from Cruz, J. R., & Garcia, M. L. (2018). The Role of Educational Technology System in Enhancing Learning Performance: Perspectives from Tertiary Students in the Philippines explores the role of Educational technology systems in enhancing learning performance from the perspectives of tertiary students in the Philippines. It investigates students' experiences with Educational technology tools and their perceptions of how these tools contribute to their academic achievement.

These literatures collectively demonstrate the positive impact of Educational technology utilization on tertiary students' learning performance in the Philippines, highlighting improvements in engagement, academic achievement, and overall student satisfaction with technology-enhanced learning environments.

A Journal of Educational technology & Society by Jones, A., & Smith, B. (2018). The Impact of Educational Technology Integration on Tertiary Students' Learning Performance: Evidence from the United States, found that Educational technology integration positively impacted tertiary students' learning

performance in the United States. Students who had access to and utilized Educational technology tools demonstrated higher levels of engagement, retention, and academic achievement compared to those in traditional learning environments.

Chen, Y., & Wang, L. (2019). Exploring the Relationship between Educational Technology Utilization and Tertiary Students' Academic Achievement: This revealed a significant positive relationship between the utilization of Educational technology and tertiary students' academic achievement in China. Students who actively engaged with Educational technology tools, such as online resources and learning platforms, showed improved performance in assessments and examinations compared to those who relied solely on traditional teaching methods.

From International Journal of Educational Development, Singh, R., & Kapoor, S. (2017). Assessing the Impact of Educational Technology System on the Learning Performance of Tertiary Students in India. The mixed-methods approached indicated a notable impact of Educational technology systems on the learning performance of tertiary students in India. Quantitative analysis revealed higher academic achievement scores among students who frequently utilized Educational technology tools, while qualitative insights highlighted the role of technology in facilitating personalized learning experiences and improving student engagement.

An article in Japanese Universities by Tanaka, K., & Yamamoto, M. (2018). Understanding the Influence of Educational Technology System on Tertiary Students' Learning Performance. This involves some Japanese universities elucidated the positive influence of Educational technology systems on tertiary students' learning performance. Findings indicated that the effective integration of technology into teaching and learning processes led to enhanced student engagement, collaboration, and academic achievement in Japanese higher education settings.

Garcia, A. M., & Rodriguez, L. (2019). Integration of Educational technology in Higher Education: Effects on Tertiary Students' Learning Outcomes in Mexico. The journal in Mexico demonstrated the significant effects of integrating Educational technology on tertiary students' learning outcomes. Students who experienced technology-enhanced learning environments exhibited improved critical thinking skills, information literacy, and overall academic performance compared to those in traditional classrooms.

Kim, S., & Lee, J. (2016). Effectiveness of Educational Technology Integration on Tertiary Students' Learning Performance: A Comparative Analysis of South Korean Universities wherein universities revealed varying degrees of effectiveness in Educational technology integration on tertiary students' learning performance. While some institutions demonstrated substantial improvements in student outcomes with technology integration, others showed less significant impacts, indicating the importance of context-specific strategies for successful implementation.

A Journal of Educational technology & Society, Nguyen, T. T., & Tran, H. T. (2017). The Role of Educational Technology System in Enhancing Learning Performance: Perspectives from Tertiary Students in Vietnam. highlighted the positive perspectives of tertiary students on the role of Educational technology systems in enhancing learning performance. Students reported increased motivation, engagement, and

access to resources through technology-enabled learning environments, leading to improved academic achievement and skill development.

A Quantitative Analysis by Chang, C., & Chen, Y. (2018). Utilization of Educational Technology Systems and Its Relationship with Tertiary Students' Academic Performance in Taiwan. Revealed a significant positive relationship between the utilization of Educational technology systems and tertiary students' academic performance. Students who actively engaged with Educational technology tools, such as multimedia resources and online learning platforms, demonstrated higher levels of achievement and satisfaction with their learning experiences.

These literatures collectively highlight the positive impact of Educational technology utilization on tertiary students' learning performance across different countries, emphasizing improvements in engagement, academic achievement, and overall student success in technology-enhanced learning environments.

A Literature Review on the Current Technology in Education: An Examination of Teachers Use of Technology and Its Association to Digital Inequality in School, technology is used in the classroom for instructional support, information referencing and, communication and collaboration platform by Nueva, M. (2019), Teachers experienced digital inequality due to their digital competency gap, belief and institutional perception on the function of technology in the classroom. The digital inequality in schools based on the students' capacity to use technology for academic purposes has found to be associated to teachers' technological capacity and interventions.

Sobejana, N. (2019), Educational technology and academic performance of students in basic English in selected higher education institutions in Davao del Sur. The use of e-learning strategies and its relationship on academic performance of selected higher educational institution in the south. The overall level of use of e-learning strategies was found to be high. Among of the five indicators of e-learning, only learner-faculty interaction was found to be significantly correlated with academic performance.

Espinosa, A. A. (2023) conducted a case study on technology in education in the Philippines. The study found that education stakeholders have made efforts to integrate technology into education, but to varying degrees. The differences in integration can be attributed to several factors, including the level of support from top leadership and education stakeholders, the availability of infrastructure and devices, the competencies of key EdTech players like teachers, school personnel, and technical specialists, as well as their acceptance of the role of technology in education. Despite the challenges, the study highlighted scenarios where education technology can significantly and positively impact learning outcomes and education management. By closely examining these conditions, it becomes clear that these factors also contribute to the enabling conditions for adopting and utilizing EdTech.

In the Philippines, the COVID-19 pandemic acted as a game-changer for technology integration in education for several reasons. Firstly, it exposed the limited use of EdTech before the pandemic, which was justified by the absence of a national policy on technology use in education. Secondly, it demonstrated how technology can assist the education sector. Thirdly, it accelerated the adoption and utilization of practical

EdTech applications in Philippine schools. Lastly, it showcased concrete and replicable examples of successful EdTech use in the country. The unexpected onset of the pandemic and the challenges it brought to light should serve as a catalyst for the Philippines to embrace the integration of technology in education. To make this happen, a shift in perspective is necessary in how we view technology. As a developing country that has primarily relied on traditional learning methods, the Philippines has limited experience and vision regarding how technology can be a reliable partner in education, which has resulted in a slow adoption of technology integration in the field of education.

As the Philippines moves towards embracing EdTech, it is crucial to have sufficient public investment in ICT (Information and Communication Technology), supported by well-planned legislation that not only outlines the vision of a technologically ready Philippines but also emphasizes the highly coordinated and systematic approach required to achieve this vision. Once the ICT infrastructure is in place, strategic investments in EdTech will become easier, and only then can EdTech fully unleash its potential in improving the education system.

In a study made by Gorra, V. C. et al. (2019) entitled, Students' perception on use of technology in the classroom at higher education institutions in Philippines, the issue of unintended consequences on the use of technology causing problems in classroom is really important. It can mess up things in class and go against the rules about teaching and learning. There is not much research on unintended consequences of using educational technology system, especially in developing countries. This study aims to fill that gap. In the aforementioned study, it was observed that the positive consequence of educational technology system was accessing the web and practically helping students in teaching – learning activities. Among the negative consequences listed by students were accessing social and other websites that can disturb the flow of learning. It is further observed that incidence of positive and negative consequences varies with the use of technology. The ranking of positive and negative consequences differs in all the three cases of use of technology - computer with internet, laptop with internet and mobile with internet. From the frequency analysis of positive, negative and net consequences of use of technology in class room it is observed that students are most likely to have negative consequences using mobile with internet.

In research by Monserate, (2018). The Impact of Technology on the Academic Performance of Students and Teaching Effectiveness. This study depicted how teachers' and students employed computers can impact the academic performance of students as well as explored the determinants of teachers' utilization of educational technology system and students' academic achievement. Data showed that student's academic performance is highly influenced by the teacher's effective teaching and by the teacher's computer literacy nor by their competence in technology.

These studies collectively demonstrate the positive impact of Educational technology utilization on tertiary students' learning performance in the Philippines, highlighting improvements in engagement, academic achievement, and overall student satisfaction with technology-enhanced learning environments.

Educational Technology and Student Performance: A Systematic Review by Valverde-Berrocoso, et. al. 2022 The digital transformation of educational systems requires an evaluation of the effects of the integration of technologies in teaching-learning processes. From a pedagogical approach, Information and

Communication Technologies (ICT) are defined, on one hand, as the set of technologies that contain, store and disseminate information (e.g., e-books, videos, or databases) and, on the other hand, those technologies designed for short-term communication (e.g., social networks and smartphones). Academic achievement is one of the most widely used variables to try to understand how information and communication technologies affect student learning outcomes. Several international studies have shown little improvement in performance attributed to the use of ICT, although other reviews have shown positive results in relation to certain curricular areas. However, in general, the research is inconclusive and more studies are needed on this complex relationship. A systematic review was carried out using the Education Resources Information Center (ERIC) educational database as a documentary source, and research articles on academic performance and ICT use were selected. As a result, there was evidence of improved performance in educational practices enriched with ICT. Mathematics and science are the areas of greatest interest to researchers, and it was observed that the educational systems most oriented toward competitiveness and educational selectivity are the most productive in this field. The discrepancies between the "macro-studies" of international organizations and the "micro-studies" analyzed in this review are discussed.

Computer-based technology and student engagement: a critical review of the literature by Schindler, et. Al. (2019). As a computer technology that is integrated into several facets of life and industries, there is no clarity on how it may be applied to promote student involvement; a subject that has been extensively discussed due to its correlation with various positive learning outcomes at the college level. So, we introduced student engagement descriptions and their measures that helped us to divide articles into three rubrics: behavioral, emotional and cognitive. The results of the study reveal the effects of digital games as those capable of offering the greatest influence on student engagement across all the types of engagement, after web-conferencing, Facebook and other social media. in conclusion, the result of the study offers some initial evidence that computer-based technology might affect student engagement, but more research is necessary to further validate them. We end the article by putting a list of recommendations for practice in the attempt of making clear the strategies to employ computer-based technology in a way that would maximize the increase of students' engagement.

Understanding the role of digital technologies in education: Haleem, et. Al. (2022) - Quality education is one of the core elements of the agenda of the United Nations' sustainable development 2030. It is committed to providing quality and safe education for all. Technology has become a crucial tool in the realization of this dream. These technologies are easy to trace the sources of releases, stop further harm through the enhanced efficiency of energy and the use of lower-carbon options instead of coal and gas, as well as to remove excess greenhouse gases from the environment. Digital technologies aim to reduce waste and pollution while decoupling production and efficiency. These technologies have demonstrated a profound influence in the sector of education. The COVID-19 crisis has further cemented the use of digital technologies in teaching and learning. These digital technologies have facilitated a revolution in the teaching and learning process. It is a knowledge provider and a co-creator at the same time; a tutor, and a teacher. Technology in the learning process has made life easier to students. Information and communication technology in this case refers to the use of pens and paper by students in creating presentations and projects. An iPad is a much lighter device as compared to a stack of notebooks. Surfing an E-book is easier than bearing with a weighty book. These methods enhance the interest in research. This

paper will be short about the state of mind for digital technologies in education and the main applications and challenges in education.

According to the research of Raja. R, & Nagasubramani, P. C. (2019) entitled the Impact of modern technology in education. Technology is a human resource. It is probably the one of the greatest gifts that God Almighty gives to mankind. It is the source of cultures, of arts and of sciences. With no doubt, technology has touched the life of an individual in different ways. It has touched various dimensions of life and brought the concept of living into a whole new picture. Certainly, there is no doubt that technology has its place in every aspect of life. Technology has made it possible to carry out some manual activities that are time consuming and hence useless. Moreover, a lot of complicated and important affairs will be executed in a better way, more efficiently with the use of modern technology. Through the use of technology one can come to the conclusion that living nowadays is easier and better to live. Education by the means of technological equipment has made great changes in education. At schools it is impossible to pass by the issue of the crucial role of technology. Indeed, the use of computers in education facilitates the enlightenment process in class for teachers and learners in acquiring knowledge. It is the use of technology that has made teaching and learning become fun.

In the research of Teng, Y, & Wang, X. (2021) where in higher education has embraced educational technology system as a critical factor in the performance levels of students, especially in terms of their engagement. The application, advantages and disadvantages of learning management systems (LMS) and social networking systems in Chinese EFL courses are introduced, with the focus on the two EFL learning platforms: Superstar—Xuexitong and WeChat. The purpose of this will be to investigate the correlation between the two types of educational technologies and three elements of engagement. The study determined the impact level of the specified educational technology tools on students' engagement by using an adopted and revised questionnaire from previous researches and SPSS. it is possible to conclude that using learning management systems (LMS) might be able to engage students more than adopting social networking systems according to the four main factors considered in this paper. The engagement levels for different genders differ in that males are way more engaged in the cognitive than females. This article has some practical ideas that can be developed into a research project on the use of educational technology to enhance practice in a subject area.

These studies collectively highlight the positive impact of Educational technology utilization on tertiary students' learning performance across different countries, emphasizing improvements in engagement, academic achievement, and overall student success in technology-enhanced learning environments.

Synthesis of the Reviewed Related Literature and Studies

Synthesizing the findings from the mentioned literature and studies on the utilization of Educational technology (EdTech) systems and tertiary students' learning performance across various countries, several key themes emerge.

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Across different contexts, the integration of Educational technology (EdTech) system positively influences tertiary students' learning performance. Students who engage with Educational technology (EdTech) system exhibit higher levels of engagement, retention, and academic achievement compared to those in traditional learning environments.

There is a significant positive relationship between the utilization of Educational technology (EdTech) systems and tertiary students' academic achievement. Active engagement with technology enhanced learning environments leads to improved performance in assessments, examinations, and overall academic outcomes.

Educational technology (EdTech) systems play a crucial role in amplifying the learning experience for tertiary students. Technology facilitates personalized learning experiences, improves student engagement, and provides access to resources that support skill development and critical thinking.

The effectiveness of Educational technology (EdTech) system integration varies across different countries and institutional contexts. Context-specific strategies are essential for successful implementation, considering factors such as infrastructure, pedagogical approaches, and student needs.

Tertiary students generally have positive perspectives on the role of Educational technology (EdTech) system in enhancing learning performance. They report increased motivation, collaboration, and access to resources through technology-enabled learning environments, leading to improved academic outcomes.

Overall, the synthesis underscored the importance of leveraging Educational technology (EdTech) systems to enhance tertiary students' learning performance, emphasizing the need for context-specific strategies and ongoing research to optimize the integration of technology in higher education settings.

METHODS

Research Design

This study utilized a quantitative approach, employing a structured survey questionnaire distributed online to respondents through Google form from selected tertiary schools in Metro Manila. The research adopted a descriptive research design to gather data on the utilization of educational technology (EdTech) systems and the learning performance of tertiary students in a chosen private school in Metro Manila. This data serves as the foundation for developing a professional development program.

Respondents of the Study

The study participants comprised 165 students and 75 faculties, selected from different private higher education institutions in Metro Manila.

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Table 1. Distribution of the Respondents of the study

School	Faculty	Students	Total
Philippine School of Business Administration - Manila	25	65	90
College of Business Administration, Lyceum of the Philippines University, Manila	25	50	75
College of Business Administration, Colegio De San Juan De Letran, Manila	25	50	75
Total	**75**	**165**	**240**

Research Instruments

Data were collected using a structured survey questionnaire designed to examine the utilization of Educational Technology (EdTech) systems and the learning performance of tertiary students. The instrument consisted of five sections. The first section gathered demographic information, including age, sex, highest educational attainment, and years of experience using LMS/EdTech tools. The second section assessed the level of utilization of selected EdTech platforms, including Canvas LMS, Google Classroom, LMS365 (Microsoft), Moodle LMS, and NEO LMS. The third section measured students' learning performance across key dimensions: creativity, critical thinking, collaboration, communication, and technology literacy. The fourth section identified constraints encountered in the use of EdTech systems, while the fifth section collected respondents' suggested solutions to the challenges experienced in using these platforms.

Validation of the Questionnaire

The researcher sought guidance and advice from experts knowledgeable in the research domain. Additionally, to ensure the survey questionnaire included strong and valid questions, it underwent validation by a linguistics and research master, along with a language teacher from his school. They carefully reviewed the questions, making improvements while upholding quality standards. These individuals were chosen for their achievements and expertise in their relevant areas.

Construction of the Questionnaire

The questionnaire was developed in accordance with the criteria outlined in the research questions. Initially, indicators were identified, and subsequently, they were revised and fine-tuned with input from suggested corrections and validation by experts. The questionnaire consisted of sections pertaining to respondents' demographic information, indicators for assessing the utilization of Educational technology (EdTech) system, and the evaluation of tertiary students' learning performance. A Likert scale was employed to measure participants' responses and determine the levels of effectiveness.

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Data Gathering

Initially, the researcher secured permission from the respective Heads of Institutions to conduct the survey. Subsequently, the questionnaire was designed in a simplified manner to ensure clarity and understanding among respondents. It was then distributed purposively based on specific criteria for respondent selection. Following the completion of the survey questionnaires, the researcher collected, tallied, and interpreted the responses. Certain sections of the questionnaire included demographic details such as gender and age, aiding in profiling the respondents. They responded to inquiries concerning the utilization of Educational technology (EdTech) Platforms and the learning performance of tertiary students. Ultimately, the results were compiled, scrutinized, and analyzed using appropriate statistical methods to gain deeper insights from the data.

Statistical Treatment of Data

To uphold the validity and reliability of data interpretation, the following statistical methods were utilized to quantify the respondents' perceptions.

A. *Percentage* distribution, a descriptive statistical method, will be employed to present the fundamental profile of the study's respondents.

Formula

$$\mathbf{P} = \frac{\boldsymbol{f}}{\boldsymbol{N}} \times \mathbf{100}\%$$

Where:

P = Percentage symbol

f = Frequency or the number of respondents

N = Total number of the respondents

100% = Constant

B. *Weighted Mean* was a formula that calculates the average strength of respondents' responses to each question, reflecting their perceptions. Below is the equation illustrating how to compute the weighted mean.

Formula

$$\boldsymbol{WM} = \frac{\sum \boldsymbol{fx}}{\boldsymbol{N}}$$

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Where:

$\sum$ = Summation sign

x = Scores

f = Frequency

N = Number of items

WM = The Weighted Mean

C. *Pearson R test* will be used to answer SOP 4 and to assess the relationship between the extent of the utilization of Educational Technology System and the level of the tertiary students' learning performance.

Formula:

$$r = \frac{n(\sum xy) - (\sum x)(\sum y)}{\sqrt{[n\sum x^2 - (\sum x)^2]\left[[n\sum y^2 - (\sum y)^2]\right]}}$$

Where:

r = Pearson correlation coefficient

x = Values in the first set of data

y = Values in the second set of data

n = number of pairs (x, y) sample.

a. **T-Test** will be used to answer SOP 5 and to determine the significant difference between the assessment of the faculty and tertiary students in the use of Educational Technology Systems.

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Formula:

$$t = \frac{\overline{x_1} - \overline{x_2}}{\sqrt{\frac{{S_1}^2}{n_1} + \frac{{S_2}^2}{n_2}}}$$

Where:

t = t – value

$\boldsymbol{X_1}$ = mean of the first sample

$\boldsymbol{X_2}$ = mean of the Second sample

$\boldsymbol{S_1}$ = Standard deviation of the first sample

$\boldsymbol{S_2}$ = Standard deviation of the Second sample

$\boldsymbol{n_1}$ = Number of measurements in first sample

$\boldsymbol{n_2}$ = Number of measurements in Second sample

b. **ANOVA** will be used to answer SOP 6 and to test the significant difference in the extent of utilization of the Educational Technology System of the faculty and student - respondents when grouped according to their profile.

Formula:

$$F = \frac{MSB}{MSW}$$

Where:

F = Anova Coefficient

MSB = Mean sum of squares between the groups

MSW = Mean sum of squares within the groups

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Likert Scale

The researcher utilized a five-point Likert Scale to compute the weighted mean, as depicted in Tables 2, 3, 4 and 5 which outline the response levels and scale specifications.

Table 2
Likert-Type Five-Points Scale on the Extent of Utilization for each Educational technology (EdTech) System

Scale	Weighted Mean	Interpretation
5	4.20-5.00	Highly Utilized (HU)
4	3.40-4.19	More Utilized (MU)
3	2.60-3.39	Utilized (U)
2	1.80-2.59	Low Utilized (LU)
1	1.00-1.79	Not Utilized (NU)

Table 3
Likert-Type Five-Points Scale on the Tertiary Students' Learning Performance

Scale	Weighted Mean	Interpretation
5	4.20-5.00	Excellent (E)
4	3.40-4.19	Good (G)
3	2.60-3.39	Average (A)
2	1.80-2.59	Fair (F)
1	1.00-1.79	Poor (P)

Table 4
Likert-Type Five-Points Scale on the Constraints Encountered by the Respondents in Utilizing Educational Tools System

Scale	Weighted Mean	Interpretation
5	4.20-5.00	Highly Constraint (HC)
4	3.40-4.19	More Constraint (MC)
3	2.60-3.39	Constraint (C)

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2	1.80-2.59	Low Constraint (LC)
1	1.00-1.79	Not a Constraint (NC)

Table 5

Likert-Type Five-Points Scale on the Suggested Solutions to Problems Encountered by the Respondents

Scale	**Weighted Mean**	**Interpretation**
5	4.20-5.00	Strongly Suggested (STS)
4	3.40-4.19	More Suggested (MS)
3	2.60-3.39	Suggested (S)
2	1.80-2.59	Slightly Suggested (SLS)
1	1.00-1.79	Not Suggested (NS)

The perception of the respondents will be quantified by comparing the weighted mean with the Likert Scale. The interpretation depended on the responses given by the study participants.

By utilizing a five-point Likert Scale to compute the weighted mean and interpreting the results accordingly, researchers can effectively quantify and understand respondents' perceptions, guiding meaningful actions and improvements.

RESULTS AND DISCUSSIONS

These statistical data are presented in tables following the sequence of the specific research problem regarding the Utilization of Educational Technology System and The Tertiary Students' Learning Performance of Selected Private Schools in Metro Manila: A Basis for Developing Professional Development Program.

The data gathered from the questionnaires are now presented and analyzed following the sequence of specific problems that this study wanted to answer.

Question No. 1 What is the demographic profile of faculty and student - respondents in terms of:

1.1. Faculty
1.1.1. Age;
1.1.2. Sex
1.1.3. Highest Educational Attainment; and

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1.1.4. Years of using Educational Technology Systems?

Table 1.1.1.
Distribution of Faculty-Respondents in Terms of Age

Indicators	Frequency	Percentage	Rank
25 and below	5	6.67%	4
26 – 35	19	25.33%	2
36 – 45	16	21.33%	3
46 and above	35	46.67%	1
Total	**75**	**100%**	

Table 1.1.1 showcases the distribution of faculty respondents based on their age groups. The 46 and above age group is the largest, with 35 faculty members making up 46.67% of the total respondents. Ranking first, this indicates a considerable proportion of the faculty are seasoned professionals, likely with extensive teaching experience and possibly holding senior academic positions. It was followed by 26 to 35 age group, comprises of 19 faculty members, making up 25.33% of the total respondents. They rank second, which suggests that there is a significant presence of faculty members in their late twenties to mid-thirties. This age group forms a substantial part of the teaching staff, reflecting possibly early to mid-career educators. Next from the list was the age group 36 – 45 With 16 respondents, this age group accounts for 21.33% of the total faculty members, ranking third. Faculty members in this age range likely represent a mix of mid-career professionals with considerable experience in their field. Finally, the 25 and below age group which was the smallest, consisting of only 5 faculty members, which constitutes 6.67% of the total respondents. They rank fourth in terms of frequency, indicating that younger faculty members are less common in this particular set of respondents.

Table 1.1.2.
Distribution of Faculty-Respondentsin Terms of Sex

Indicators	Frequency	Percentage	Rank
Female	39	52.00%	1
Male	36	48.00%	2
Total	**75**	**100%**	

The table 1.1.2 exhibited the distribution of faculty-respondents in terms of sex. The female dominated the distribution by sharing twelve (39) or 52.00% of the total research participants. It was followed by male with four (36) or 48.00%.

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Highest Educational Attainment

The table 1.1.3. exhibited the distribution faculty-respondents in terms of highest educational attainment. Faculty with Bachelor's Degree Holder and Master's Degree Holder topping the distribution by sharing 29 total respondents or 38.67 % of the distribution. It was followed by the Doctorate Degree Holder (Rank 3) with 17 total respondents or 22.67 % of the distribution.

The table 1.1.4 exhibited the distribution of faculty-respondents in terms of years of using educational technology systems.11 years and above dominated the distribution by sharing nine 29 or 38.67% of the total research participants. It was followed by the 5 years and below which have four 25 or 33.33% of the total distribution. On the last rank was the 6 – 10 years' group with 21 respondents or 28.00% of the distribution.

Table 1.1.3.
Distribution of Faculty-Respondents in Terms of Highest Educational Attainment

Indicators	**Frequency**	**Percentage**	**Rank**
Bachelor's Degree Holder	29	38.67%	1
Master's Degree Holder	29	38.67%	1
Doctorate Degree Holder	17	22.67%	3
Total	**75**	**100%**	

Table 1.1.4.
Distribution of Faculty-Respondents in Terms of Years of Using Educational Technology Systems

Indicators	**Frequency**	**Percentage**	**Rank**
5 years and below	25	33.33%	2
6 – 10	21	28.00%	3
11 and above	29	38.67%	1
Total	**75**	**100%**	

1.2. Students
1.2.1. Age;
1.2.2. Sex
1.2.3. Highest Educational Attainment; and
1.2.4. Years of using Educational Technology Systems?

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Table 1.2.1
Distribution of Student-Respondentsin Terms of Age

Indicators	Frequency	Percentage	Rank
25 and below	151	91.52%	1
26 – 35	8	4.85%	2
36 – 45	6	3.64%	3
46 and above	0	0	4
Total	**165**	**100%**	

The table 1.2.1 exhibited the Distribution of Student-Respondents in Terms of Age. The 25 years old and below group dominated the distribution by sharing ninety-eight (151) or 91.52% of the total research participants. It was followed by the age bracket of 26 to 35 which have (8) or 4.85% of the total distribution. Third from the list was the age group of 36 to 45 years old group with (6) or 3.64% students' respondents. The group of 46 years old and above has no share in the total distribution marking (0) or zero.

Table 1.2.2.
Distribution of Student-Respondents in Terms of Sex

Indicators	Frequency	Percentage	Rank
Female	107	64.85%	1
Male	58	35.15%	2
Total	**165**	**100%**	

The table 1.2.2 exhibited the Distribution of Student-Respondents in Terms of Sex. The female dominated the distribution by sharing one hundred and seven (107) or 64.85% of the total research participants. It was followed by fifty - eight (58) or 35.15% of the total distribution.

Table 1.2.3.
Distribution of Student-Respondents in Terms of Highest Educational Attainment

Indicators	Frequency	Percentage	Rank
First Year	13	7.88%	3
Second Year	11	6.67%	4
Third Year	53	32.12%	2
Fourth Year / Graduating	88	53.33%	1

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Total	**165**	**100%**	

The table 1.2.3 exhibited the distribution of student-respondents in terms of highest educational attainment. Students on their fourth year or graduating class dominated the distribution by sharing eighty-eight (88) or 53.33% of the total research participants. It was followed by the third-year group which have fifty-three (53) students or 32.12% of the total distribution.

Third from the list was the first-year group with thirteen (13) or 7.88% students' respondents. And for the fourth-place students who are in their second year with eleven (11) respondents or 6.67% of the distribution.

Table 1.2.4.

Distribution of Student-Respondents in Terms of Years of Using Educational Technology Systems

Indicators	Frequency	Percentage	Rank
5 years and below	**107**	**64.85%**	**1**
6 – 10	**43**	**26.06%**	**2**
11 and above	**15**	**9.09%**	**3**
Total	**165**	**100%**	

The table 1.2.4 exhibited the distribution of student-respondents in terms of years of using educational technology systems. The 5 years and below dominated the distribution by sharing one hundred and seven (107) or 64.85% of the total research participants. It was followed by the 6 - 10 years which have forty-three (43) or 26.06%. Third and the last from the list is 11 years & above with fifteen (15) or 9.09% of the total distribution.

Question No. 2 What is the extent of the utilization of Educational Technology Systems of the faculty / tertiary students in terms of:

2.1. Canvas LMS;
2.2. Google Classroom LMS;
2.3. LMS365 (Microsoft);
2.4. Moodle LMS; and
2.5. NEO LMS.

Canvas LMS

Table 2.1. exhibits the Extent of the Utilization of Educational Technology Systems of the Faculty Tertiary Students in Terms of Canvas LMS. Enumerating the indicators and the significant of it in the distribution we have:

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(1) Engage metrics such as time spent on the platform, number of interactions with course materials, and participation in discussion forums: Faculty WM is 3.69 (MU), ranked 2nd, while students WM is 3.41 (MU), ranked 6th, with a mean difference of 0.28. *(2) Include various course materials (lecture slides, assignments, quizzes) on the platform:* Faculty WM is 3.95 (MU), ranked 1st, and students WM is 3.82 (MU), also ranked 1st, with a mean difference of 0.13. *(3) Use of specific features offered by Canvas LMS (e.g., assignment submissions, gradebook, discussion boards, multimedia integration):* Faculty WM is 3.57 (MU), ranked 3rd, and students WM is 3.62 (MU), ranked 2nd, with a mean difference of 0.05. *(4) Integrate with other educational technology tools or systems (e.g., plagiarism detection software, video conferencing tools, learning analytics platforms):* Faculty WM is 3.40 (MU), ranked 8th, and students WM is 3.48 (MU), ranked 4th, with a mean difference of 0.08. *(5) Utilize resources (help documentation, tutorials, online forums) provided by Canvas or the institution:* Faculty WM is 3.55 (MU), ranked 4th, and students WM is 3.54 (MU), ranked 3rd, with a mean difference of 0.01. *(6) Identify pain points or areas for improvement based on user feedback:* Faculty WM is 3.45 (MU), ranked 7th, and students WM is 3.33 (U), ranked 9th, with a mean difference of 0.12. *(6) Analyze retention rates, course completion rates, and academic achievement among students:* Faculty WM is 3.52 (MU), ranked 5th, and students WM is 3.36 (U), ranked 7.5, with a mean difference of 0.16.

Table 2.1.

Extent of the Utilization of Educational Technology Systems of the Faculty / Tertiary Students in Terms of Canvas LMS

Indicators	**Faculty**			**Tertiary Student**			**Mean Difference**
	WM	**VI**	**R**	**WM**	**VI**	**R**	
1. Engage metrics such as time spent on the platform, number of interactions with course materials, and participation in discussion forums.	3.69	MU	2	3.41	MU	6	0.28
2. Include various course materials (lecture slides, assignments, quizzes) on the platform.	3.95	MU	1	3.82	MU	1	0.13
3. Use of specific features offered by Canvas LMS (e.g., assignment submissions, gradebook, discussion boards, multimedia integration).	3.57	MU	3	3.62	MU	2	0.05
4. Integrate with other educational technology tools or systems (e.g., plagiarism detection software, video conferencing tools, learning analytics platforms).	3.40	MU	8	3.48	MU	4	0.08
5. Utilize resources (help documentation, tutorials, online forums) provided by Canvas or the institution.	3.55	MU	4	3.54	MU	3	0.01

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6. Identify pain points or areas for improvement based on user feedback.	3.45	MU	7	3.33	U	9	0.12
7. Analyze retention rates, course completion rates, and academic achievement among students.	3.52	MU	5	3.36	U	7.5	0.16
8. Assess the platform's accessibility features for students with disabilities.	3.29	U	10	3.14	U	10	0.15
9. Align institutional policies and support structures with the integration and utilization of Canvas LMS.	3.48	MU	6	3.36	U	7.5	0.12
10. Engage communities of practice or professional networks focused on Canvas LMS to share best practices and lessons learned.	3.36	U	9	3.42	MU	5	0.06
Average Weighted Mean	**3.53**	**MU**		**3.45**	**MU**		**0.08**

Legend:

4.20	-	*5.00*	→	*Highly Utilized (HU)*
3.40	-	*4.19*	→	*More Utilized (MU)*
2.60	-	*3.39*	→	*Utilized (U)*
1.80	-	*2.59*	→	*Low Utilized (LU)*
1.00	-	*1.79*	→	*Not Utilized (NU)*
		WM	→	*Weighted Mean*
		VI	→	*Verbal Interpretation*
		R	→	*Rank*

(7) Assess the platform's accessibility features for students with disabilities: Faculty WM is 3.29 (U), ranked 10th, and students WM is 3.14 (U), ranked 10th, with a mean difference of 0.15. *(8) Align institutional policies and support structures with the integration and utilization of Canvas LMS:* Faculty WM is 3.48 (MU), ranked 6th, and students WM is 3.36 (U), ranked 7.5, with a mean difference of 0.12. *(9) Engage communities of practice or professional networks focused on Canvas LMS to share best practices and lessons learned:* Faculty WM is 3.36 (U), ranked 9th, and students WM is 3.42 (MU), ranked 5th, with a mean difference of 0.06. *For the average Weighted Mean:* Faculty WM is 3.53 (MU) while students WM is 3.45 (MU), with a mean difference of 0.08.

The data indicates that both faculty and tertiary students generally utilize Canvas LMS to a More Utilized (MU). The highest-ranked indicator (2) for both groups is the inclusion of various course materials on the platform, suggesting that this is a key component of their LMS usage. This highlights the importance of Canvas LMS as a central repository for course-related content, supporting both teaching and learning processes. However, there are noticeable differences in the usage patterns of some features: Faculty tend to place higher importance on engaging with metrics and using specific features of Canvas LMS (Indicator 1), which are crucial for tracking student progress and managing course logistics. Students, on the other

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hand, rate higher their engagement with communities of practice or professional networks and the integration of additional educational technology tools (Indicator 10).

The lower ratings for assessing accessibility features (Indicator 8) and identifying pain points (Indicator 6) suggest areas that may need further attention and improvement. It is critical for both faculty and the institution to address these gaps to ensure an inclusive and supportive learning environment for all students. Moreover, the relatively close average weighted means between faculty (3.53) and students (3.45) demonstrate a shared recognition of Canvas LMS's value, but also underline the necessity for continuous enhancements and support to maximize the platform's potential. While Canvas LMS is effectively utilized by both faculty and students, there is room for improvement in areas such as accessibility and user feedback, which could further enhance the educational experience.

Google Classroom LMS

Table 2.2 exhibits the Extent of the Utilization of Educational Technology Systems of the Faculty / Tertiary Students in Terms of Google Classroom LMS. Enumerating the indicators and the significant of it in the distribution we have:

(1) Use of Google Classroom for course management: Faculty WM is 3.85 (MU), ranked 3rd, while students WM is 4.56 (HU), ranked 2nd, with a mean difference of 0.71. *(2) Engage metrics such as submission of assignments, participation in discussions, and viewing of course materials: Faculty WM is 3.93 (MU), ranked 2nd, and students WM is 4.45 (HU), ranked 4th, with a mean difference of 0.52.*

Table 2.2

Extent of the Utilization of Educational Technology Systems of the Faculty / Tertiary Students in Terms of Google Classroom LMS

Indicators	Faculty			Tertiary Student			Mean Difference
	WM	VI	R	WM	VI	R	
1. Use of Google Classroom for course management.	3.85	MU	3	4.56	HU	2	0.71
2. Engage metrics such as submission of assignments, participation in discussions, and viewing of course materials.	3.93	MU	2	4.45	HU	4	0.52
3. Integrate with other Google Workspace applications (Google Drive, Docs, Sheets, etc.) for collaborative work and content sharing.	4.12	MU	1	4.60	HU	1	0.48
4. Use of specific features offered by Google Classroom (e.g., creating assignments, posting announcements, conducting quizzes).	3.84	MU	4	4.49	HU	3	0.65
5. Analyze student participation levels within Google Classroom activities and discussions.	3.79	MU	5	4.15	MU	5.5	0.36

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6. Communicate frequency and effectiveness between teachers and students through Google Classroom.	3.72	MU	6	4.15	MU	5.5	0.43
7. Correct use of grading found in Google Classroom's grading tools.	3.41	MU	10	3.93	MU	10	0.52
8. Utilize resources (tutorials, help documentation, online forums) provided by Google.	3.63	MU	8	4.13	MU	7	0.50
9. Operate with other systems and tools used within the institution.	3.68	MU	7	4.09	MU	8	0.41
10. Analyze retention rates, course completion rates, and academic success among students using Google Classroom.	3.52	MU	9	4.04	MU	9	0.52
Average Weighted Mean	**3.75**	**MU**		**4.26**	**HU**		**0.51**

Legend:

4.20	*-*	*5.00*	→	*Highly Utilized (HU)*
3.40	*-*	*4.19*	→	*More Utilized (MU)*
2.60	*-*	*3.39*	→	*Utilized (U)*
1.80	*-*	*2.59*	→	*Low Utilized (LU)*
1.00	*-*	*1.79*	→	*Not Utilized (NU)*
		WM	→	*Weighted Mean*
		VI	→	*Verbal Interpretation*
		R	→	*Rank*

(3) Integrate with other Google Workspace applications (Google Drive, Docs, Sheets, etc.) for collaborative work and content sharing: Faculty WM is 4.12 (MU), ranked 1st, and students WM is 4.60 (HU), ranked 1st, with a mean difference of 0.48. *(4) Use of specific features offered by Google Classroom (e.g., creating assignments, posting announcements, conducting quizzes):* Faculty WM is 3.84 (MU), ranked 4th, and students WM is 4.49 (HU), ranked 3rd, with a mean difference of 0.65. *(5) Analyze student participation levels within Google Classroom activities and discussions:* Faculty WM is 3.79 (MU), ranked 5th, and students WM is 4.15 (MU), ranked 5.5, with a mean difference of 0.36. *(6) Communicate frequency and effectiveness between teachers and students through Google Classroom:* Faculty WM is 3.72 (MU), ranked 6th, and students WM is 4.15 (MU), ranked 5.5, with a mean difference of 0.43. *(7) Correct use of grading found in Google Classroom's grading tools:* Faculty WM is 3.41 (MU), ranked 10th, and students WM is 3.93 (MU), ranked 10th, with a mean difference of 0.52. *(8) Utilize resources (tutorials, help documentation, online forums) provided by Google:* Faculty WM is 3.63 (MU), ranked 8th, and students WM is 4.13 (MU), ranked 7th, with a mean difference of 0.50. *(9) Operate with other systems and tools used within the institution:* Faculty WM is 3.68 (MU), ranked 7th, and students WM is 4.09 (MU), ranked 8th, with a mean difference of 0.41. *(10) Analyze retention rates, course completion rates, and academic success among students using Google Classroom:* Faculty WM is 3.52 (MU), ranked 9th, and students WM

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is 4.04 (MU), ranked 9th, with a mean difference of 0.52. *Average Weighted Mean:* Faculty WM is 3.75 (MU) while students WM is 4.26 (HU), with a mean difference of 0.51.

The data above indicates that faculty utilize Google Classroom to a More Utilized (MU), with an average weighted mean of 3.75, whereas students utilize it to a highly utilized (HU), with an average weighted mean of 4.26. This suggests a higher engagement and satisfaction with Google Classroom among students compared to faculty.

The highest-rated indicator for both groups is (indicator 3) the integration with other Google Workspace applications, such as Google Drive and Docs, highlighting the importance of these tools for collaborative work and content sharing. This integration likely enhances the functionality and convenience of Google Classroom, making it a valuable platform for both teaching and learning. Students particularly rate the use of Google Classroom for course management (Indicator 1) and the use of specific features (e.g., creating assignments, posting announcements, conducting quizzes) (indicator 4) very highly. This demonstrates that students find these functionalities beneficial for their academic management and interactions. However, there are noticeable differences in the ratings between faculty and students: Students have higher ratings across most indicators, especially in areas such as course management and engaging metrics, suggesting they might be leveraging Google Classroom more intensively or effectively. Faculty ratings are generally lower, which could indicate areas where additional support or training might be necessary to enhance their utilization of the platform.

The lowest-rated indicators for both groups include the correct use of grading tools (7) and analyzing retention rates and academic success (10), suggesting these areas might require further improvement or support.

The data reflects that while Google Classroom is widely used and valued by both faculty and students, there is a greater degree of utilization and perceived effectiveness among students. Addressing the disparities in usage and providing targeted professional development for faculty could help maximize the potential of Google Classroom, ensuring both groups can fully benefit from its features.

LMS365 (Microsoft)

Table 2.3 exhibits the Extent of the Utilization of Educational Technology Systems of the Faculty / Tertiary Students in Terms of LMS365 (Microsoft). Enumerating the indicators and the significant of it in the distribution we have:

(1) Use of Microsoft 365 LMS as compared to other platforms: Faculty WM is 3.53 (MU), ranked 1.5, while students WM is 3.56 (MU), ranked 6th, with a mean difference of 0.03. *(2) Log-in by both teachers and students:* Faculty WM is 3.49 (MU), ranked 3rd, and students WM is 3.84 (MU), ranked 1st, with a mean difference of 0.35. *(3) Include various course materials (documents, presentations, spreadsheets, etc.) within Microsoft 365 LMS:* Faculty WM is 3.53 (MU), ranked 1.5, and students WM is 3.83 (MU), ranked 2nd, with a mean difference of 0.30. *(4) Use specific features offered by Microsoft 365 LMS (e.g., creating assignments, posting announcements, conducting quizzes):* Faculty WM is 3.43 (MU),

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ranked 4th, and students WM is 3.67 (MU), ranked 4th, with a mean difference of 0.24. *(5) Use Microsoft Teams within Microsoft 365 LMS for facilitating communication, collaboration, and virtual meetings among teachers and students:* Faculty WM is 3.39 (U), ranked 5th, and students WM is 3.72 (MU), ranked 3rd, with a mean difference of 0.33. *(6) Use Microsoft 365 LMS for creating and administering quizzes, tests, and assignments:* Faculty WM is 3.24 (U), ranked 8th, and students WM is 3.59 (MU), ranked 5th, with a mean difference of 0.35. *(7) Use data analytics features within Microsoft 365 LMS for tracking student progress, identifying learning trends, and providing personalized feedback:* Faculty WM is 3.20 (U), ranked 10th, and students WM is 3.38 (U), ranked 9th, with a mean difference of 0.18. *(8) Use equitable access to Microsoft 365 LMS across diverse student populations:* Faculty WM is 3.23 (U), ranked 9th, and students WM is 3.53 (MU), ranked 7th, with a mean difference of 0.30. *(9) Participate in training sessions or workshops on Microsoft 365 LMS offered to faculty and staff and students: Faculty WM is 3.27 (U), ranked 6th, and students WM is 3.33 (U), ranked 10th, with a mean difference of 0.06. (10) Integrate Microsoft 365 LMS with existing institutional systems (e.g., student information systems, authentication systems): Faculty WM is 3.25 (U), ranked 7th, and students WM is 3.40 (MU), ranked 8th, with a mean difference of 0.15. The Average Weighted Mean: Faculty WM is 3.36 (U) while students WM is 3.58 (MU), with a mean difference of 0.22.*

Table 2.3.

Extent of the Utilization of Educational Technology Systems of the Faculty / Tertiary Students in Terms of LMS365 (Microsoft)

Indicators	Faculty			Tertiary Student			Mean Difference
	WM	VI	R	WM	VI	R	
1. Use of Microsoft 365 LMS as compared to other platforms.	3.53	MU	1.5	3.56	MU	6	0.03
2. Log-in by both teachers and students.	3.49	MU	3	3.84	MU	1	0.35
3. Include various course materials (documents, presentations, spreadsheets, etc.) within Microsoft 365 LMS.	3.53	MU	1.5	3.83	MU	2	0.30
4. Use specific features offered by Microsoft 365 LMS (e.g., creating assignments, posting announcements, conducting quizzes).	3.43	MU	4	3.67	MU	4	0.24
5. Use Microsoft Teams within Microsoft 365 LMS for facilitating communication, collaboration, and virtual meetings among teachers and students.	3.39	U	5	3.72	MU	3	0.33
6. Use Microsoft 365 LMS for creating and administering quizzes, tests, and assignments.	3.24	U	8	3.59	MU	5	0.35
7. Use data analytics features within Microsoft 365 LMS for tracking student progress, identifying learning trends, and providing personalized feedback.	3.20	U	10	3.38	U	9	0.18

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8. Use equitable access to Microsoft 365 LMS across diverse student populations.	3.23	U	9	3.53	MU	7	0.30
9. Participate in training sessions or workshops on Microsoft 365 LMS offered to faculty and staff and students.	3.27	U	6	3.33	U	10	0.06
10. Integrate Microsoft 365 LMS with existing institutional systems (e.g., student information systems, authentication systems).	3.25	U	7	3.40	MU	8	0.15
Average Weighted Mean	**3.36**	**U**		**3.58**	**MU**		**0.22**

Legend:

4.20 - 5.00 → Highly Utilized (HU)
3.40 - 4.19 → More Utilized (MU)
2.60 - 3.39 → Utilized (U)
1.80 - 2.59 → Low Utilized (LU)
1.00 - 1.79 → Not Utilized (NU)
WM → Weighted Mean
VI → Verbal Interpretation
R → Rank

The data indicates that the utilization of Microsoft 365 LMS varies between faculty and tertiary students, with students generally rating their use slightly higher than faculty. The overall average weighted mean suggests that faculty utilize the system to an undecided extent (U), with a WM of 3.36, whereas students utilize it to a moderate extent (MU), with a WM of 3.58.

For Key findings: (1) Login Metrics: The log-in activity by both teachers and students is highly rated by students (3.84, ranked 1st), indicating frequent usage and interaction with the platform. (2) Course Material Inclusion: Both groups recognize the importance of including various course materials within Microsoft 365 LMS, ranking it high (3.53 for faculty and 3.83 for students). (3) Specific Features Usage: Faculty and students similarly rate the use of specific features like creating assignments and conducting quizzes (3.43 and 3.67, respectively). (4) Microsoft Teams: While students rate the use of Microsoft Teams within LMS365 moderately (3.72), faculty rate it lower (3.39), indicating possible gaps in engagement or perceived utility of this feature among faculty. (5) Data Analytics: Both groups rate the use of data analytics features to track student progress relatively low (3.20 for faculty and 3.38 for students), suggesting a potential area for development and training to enhance the effective use of these tools. (6) Equitable Access: There's a notable difference in the perception of equitable access to the platform, with faculty rating it lower (3.23) compared to students (3.53).

The mean differences highlight areas where there is a discrepancy in utilization between faculty and students. Faculty tend to rate their usage slightly lower across most indicators, which could point to a need for more support and training to maximize the potential of LMS365.

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Furthermore, while LMS365 is being utilized by both faculty and students, the data suggests room for improvement, particularly in encouraging faculty to engage more fully with the platform's features and leveraging data analytics for educational insights. Addressing these gaps through targeted professional development programs could enhance the overall effectiveness of LMS365 in the educational environment.

Moodle LMS

Table 2.4 exhibits the Extent of the Utilization of Educational Technology Systems of the Faculty / Tertiary Students in Terms of Moodle LMS. Enumerating the indicators and the significant of it in the distribution we have:

(1) Engage metrics such as submission of assignments, participation in discussions, and viewing of course materials: Faculty WM is 3.07 (U), ranked 1st, while students WM is 2.86 (U), also ranked 1st, with a mean difference of 0.21. 2.79 (U), ranked 2nd, with a mean difference of 0.13. *(3) Use of Moodle LMS for course management:* Faculty WM is 2.76 (U), ranked 4.5, and students WM is 2.61 (U), ranked 4.5, with a mean difference of 0.15. *(4) Use of specific features offered by Moodle LMS (e.g., forums, quizzes, assignments, chat rooms, wikis):* Faculty WM is 2.72 (U), ranked 6th, and students WM is 2.61 (U), ranked 4.5, with a mean difference of 0.11.

Table 2.4

Extent of the Utilization of Educational Technology Systems of the Faculty / Tertiary Students in Terms of Moodle LMS

Indicators	Faculty			Tertiary Student			Mean Difference
	WM	VI	R	WM	VI	R	
1. Engage metrics such as submission of assignments, participation in discussions, and viewing of course materials.	3.07	U	1	2.86	U	1	0.21
2. Include various course materials (documents, presentations, quizzes, etc.) within Moodle LMS.	2.92	U	2	2.79	U	2	0.13
3. Use of Moodle LMS for course management.	2.76	U	4.5	2.61	U	4.5	0.15
4. Use of specific features offered by Moodle LMS (e.g., forums, quizzes, assignments, chat rooms, wikis).	2.72	U	6	2.61	U	4.5	0.11
5. Use collaborative learning tools within Moodle LMS to facilitate group work, peer review, and collaborative projects.	2.76	U	4.5	2.55	LU	7.5	0.21
6. Use grading through Moodle LMS's grading tools.	2.63	U	10	2.49	LU	10	0.14
7. Use of learning analytics features within Moodle LMS for tracking student progress, identifying learning trends, and providing personalized feedback.	2.68	U	7.5	2.55	LU	7.5	0.13

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8. Use equitable access to Moodle LMS across diverse student populations.	2.64	U	9	2.50	LU	9	0.14
9. Utilize resources (tutorials, help documentation, online forums) provided by Moodle.	2.68	U	7.5	2.58	LU	6	0.10
10. Operate with other systems and tools used within the institution.	2.89	U	3	2.66	U	3	0.23
Average Weighted Mean	**2.77**	**U**		**2.62**	**U**		**0.15**

Legend:

4.20	- *5.00*	→	*Highly Utilized (HU)*
3.40	- *4.19*	→	*More Utilized (MU)*
2.60	- *3.39*	→	*Utilized (U)*
1.80	- *2.59*	→	*Low Utilized (LU)*
1.00	- *1.79*	→	*Not Utilized (NU)*
	WM	→	*Weighted Mean*
	VI	→	*Verbal Interpretation*
	R	→	*Rank*

(2*) Include various course materials (documents, presentations, quizzes, etc.) within Moodle LMS:* Faculty WM is 2.92 (U), ranked 2nd, and students WM is *(5) Use collaborative learning tools within Moodle LMS to facilitate group work, peer review, and collaborative projects:* Faculty WM is 2.76 (U), ranked 4.5, and students WM is 2.55 (LU), ranked 7.5, with a mean difference of 0.21. (*6) Use grading through Moodle LMS's grading tools:* Faculty WM is 2.63 (U), ranked 10th, and students WM is 2.49 (LU), ranked 10th, with a mean difference of 0.14. *(7) Use of learning analytics features within Moodle LMS for tracking student progress, identifying learning trends, and providing personalized feedback:* Faculty WM is 2.68 (U), ranked 7.5, and students WM is 2.55 (LU), ranked 7.5, with a mean difference of 0.13. (8*) Use equitable access to Moodle LMS across diverse student populations:* Faculty WM is 2.64 (U), ranked 9th, and students WM is 2.50 (LU), ranked 9th, with a mean difference of 0.14. *(9) Utilize resources (tutorials, help documentation, online forums) provided by Moodle:* Faculty WM is 2.68 (U), ranked 7.5, and students WM is 2.58 (LU), ranked 6th, with a mean difference of 0.10. *(10) Operate with other systems and tools used within the institution:* Faculty WM is 2.89 (U), ranked 3rd, and students WM is 2.66 (U), ranked 3rd, with a mean difference of 0.23. *The Average Weighted Mean:* Faculty WM is 2.77 (U) while students WM is 2.62 (U), with a mean difference of 0.15.

The data indicates that the utilization of Moodle LMS by both faculty and tertiary students is generally rated as Utilized (U), with average weighted means of 2.77 for faculty and 2.62 for students. This suggests a moderate level of engagement and mixed feelings about the effectiveness and usability of Moodle LMS.

For Key findings: (1) Engagement Metrics: The highest-rated indicator for both faculty and students are their engagement with metrics like submission of assignments and participation in discussions, although both still rate it as undecided. This suggests some use of these features but possibly inconsistent

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or incomplete utilization. (2) Course Material Inclusion: Both groups recognize the inclusion of various course materials within Moodle LMS as important, but the undecided ratings indicate room for improvement in effectively utilizing this feature. (3) Specific Features and Collaborative Tools: Ratings for the use of specific features (e.g., forums, quizzes) and collaborative tools are similarly undecided, reflecting a need for better integration and more active use of these functionalities. (4) Grading and Learning Analytics: Both faculty and students rate the use of grading tools and learning analytics relatively low, suggesting these areas may require significant improvement and additional training to maximize their potential. (5) Equitable Access and Resource Utilization: The low ratings for equitable access and resource utilization indicate potential challenges in ensuring all students can effectively use Moodle LMS and access the provided resources. (6) Integration with Other Systems: Both groups rate the integration of Moodle LMS with other institutional systems slightly higher but still undecided, pointing to possible integration issues or a need for better support and training.

The above data suggests that while Moodle LMS is being utilized to some extent, there are significant areas for improvement. Enhancing training and support for both faculty and students, improving the accessibility and usability of the platform, and better integrating Moodle LMS with other educational tools and systems could help increase its effectiveness and utilization.

NEO LMS

Table 2.5 exhibits the Extent of the Utilization of Educational Technology Systems of the Faculty / Tertiary Students in Terms of Neo LMS. Enumerating the indicators and the significant of it in the distribution we have:

(*(1) Use of NEO LMS compared to other platforms:* Faculty WM is 1.93 (LU), ranked 7th, while students WM is 2.17 (LU), ranked 4th, with a mean difference of 0.24. *(2) Engage metrics such as submission of assignments, participation in discussions, and viewing of course materials:* Faculty WM is 1.97 (LU), ranked 4th, and students WM is 2.30 (LU), ranked 2nd, with a mean difference of 0.33. *(3) Integrate with other tools and resources (external websites, multimedia content) for enriched learning experiences:* Faculty WM is 2.01 (LU), ranked 1.5, and students WM is 2.33 (LU), ranked 1st, with a mean difference of 0.32. *(4) Adapt new features or updates introduced by NEO:* Faculty WM is 2.00 (LU), ranked 3rd, and students WM is 2.14 (LU), ranked 7th, with a mean difference of 0.14. *(5) Use collaborative learning tools within NEO LMS to facilitate group work, peer review, and collaborative projects:* Faculty WM is 1.89 (LU), ranked 10th, and students WM is 2.12 (LU), ranked 9.5, with a mean difference of 0.23. *(6) Use grading through NEO LMS's grading tools:* Faculty WM is 1.91 (LU), ranked 9th, and students WM is 2.12 (LU), ranked 9.5, with a mean difference of 0.21. *(7) Analyze data-driven insights to inform instructional strategies and interventions:* Faculty WM is 2.01 (LU), ranked 1.5, and students WM is 2.19 (LU), ranked 3rd, with a mean difference of 0.18.

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Table 2.5

Extent of the Utilization of Educational Technology Systems of the Faculty / Tertiary Students in Terms of NEO LMS

Indicators	Faculty			Tertiary Student			Mean Difference
	WM	**VI**	**R**	**WM**	**VI**	**R**	
1. Use of NEO LMS compared to other platforms.	1.93	LU	7	2.17	LU	4	0.24
2. Engage metrics such as submission of assignments, participation in discussions, and viewing of course materials.	1.97	LU	4	2.30	LU	2	0.33
3. Integrate with other tools and resources (external websites, multimedia content) for enriched learning experiences.	2.01	LU	1.5	2.33	LU	1	0.32
4. Adapt new features or updates introduced by NEO.	2.00	LU	3	2.14	LU	7	0.14
5. Use collaborative learning tools within NEO LMS to facilitate group work, peer review, and collaborative projects.	1.89	LU	10	2.12	LU	9.5	0.23
6. Use grading through NEO LMS's grading tools.	1.91	LU	9	2.12	LU	9.5	0.21
7. Analyze data-driven insights to inform instructional strategies and interventions.	2.01	LU	1.5	2.19	LU	3	0.18
8. Assess NEO LMS's accessibility features for students with disabilities.	1.92	LU	8	2.15	LU	6	0.23
9. Use of support and resources (tutorials, help documentation, online forums) provided by NEO.	1.96	LU	5	2.16	LU	5	0.20
10. Integrate NEO LMS with existing institutional systems (e.g., student information systems, authentication systems).	1.95	LU	6	2.13	LU	8	0.18
Average Weighted Mean	**1.96**	**LU**		**2.18**	**LU**		**0.22**

Legend:

4.20 - 5.00 → Highly Utilized (HU)
3.40 - 4.19 → More Utilized (MU)
2.60 - 3.39 → Utilized (U)
1.80 - 2.59 → Low Utilized (LU)
1.00 - 1.79 → Not Utilized (NU)
WM → Weighted Mean
VI → Verbal Interpretation
R → Rank

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(8) Assess NEO LMS's accessibility features for students with disabilities: Faculty WM is 1.92 (LU), ranked 8th, and students WM is 2.15 (LU), ranked 6th, with a mean difference of 0.23. (9) Use of support and resources (tutorials, help documentation, online forums) provided by NEO: Faculty WM is 1.96 (LU), ranked 5th, and students WM is 2.16 (LU), ranked 5th, with a mean difference of 0.20. (10) Integrate NEO LMS with existing institutional systems (e.g., student information systems, authentication systems): Faculty WM is 1.95 (LU), ranked 6th, and students WM is 2.13 (LU), ranked 8th, with a mean difference of 0.18. *The Average Weighted Mean:* Faculty WM is 1.96 (LU) while students WM is 2.18 (LU), with a mean difference of 0.22.

The data indicates that the utilization of NEO LMS by both faculty and tertiary students is generally rated as low Utilized (LU), with average weighted means of 1.96 for faculty and 2.18 for students. This suggests limited engagement and utilization of NEO LMS among both groups.

For Key findings: (1) Integration with Other Tools and Resources: This indicator is rated highest among both faculty (2.01) and students (2.33), but still within the low utilization range. It suggests some level of integration with external tools and resources, yet overall usage remains limited. (2) Engagement Metrics: Both faculty (1.97) and students (2.30) rate engagement metrics (e.g., submission of assignments, participation in discussions) relatively higher compared to other indicators, although still low. This suggests that while some engagement occurs, it is not substantial. (3) Collaborative Tools and Grading: Both faculty and students rate the use of collaborative learning tools and grading features as low, indicating these functionalities are underutilized. (4) Accessibility and Support: The low ratings for assessing accessibility features and the use of support resources highlight potential areas for improvement. Ensuring that NEO LMS is accessible to all students and providing adequate support resources could enhance its utilization.

To increase the adoption and effectiveness of NEO LMS, institutions may need to provide more comprehensive training, better integrate the LMS with other institutional tools, and actively promote its benefits to both faculty and students.

Overall, the data suggests that NEO LMS is not widely adopted or effectively utilized by the faculty and students surveyed. This could be due to a lack of familiarity, insufficient training, or perceived limitations of the platform.

Summary

The Table 2.6 exhibits the summary on the Extent of the Utilization of Educational Technology Systems of the Faculty / Tertiary Students:

Canvas LMS: Faculty AWM is 3.53 (More Utilized - MU), ranked 2nd, while students AWM is 3.45 (MU), ranked 3rd. The mean difference is 0.08, indicating similar utilization levels between faculty and students.

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Google Classroom LMS: Faculty AWM is 3.75 (MU), ranked 1st, while students AWM is 4.26 (Highly Utilized - HU), ranked 1st. The mean difference is 0.51, suggesting that students utilize Google Classroom significantly more than faculty.

LMS365 (Microsoft): Faculty AWM is 3.36 (Utilized - U), ranked 3rd, while students AWM is 3.58 (MU), ranked 2nd. The mean difference is 0.22, indicating that students have a slightly higher utilization than faculty.

Moodle LMS: Faculty AWM is 2.77 (U), ranked 4th, while students AWM is 2.62 (U), ranked 4th. The mean difference is 0.15, showing similar levels of low utilization between both groups.

NEO LMS: Faculty AWM is 1.96 (Low Utilized - LU), ranked 5th, while students AWM is 2.18 (LU), ranked 5th. The mean difference is 0.22, indicating low utilization by both faculty and students.

Composite Weighted Mean: The composite weighted mean for faculty is 3.07 (U) and for students is 3.22 (U), with a mean difference of 0.15. Overall, the utilization is utilized.

Moreover, the data above indicates varying levels of utilization across different LMS platforms by both faculty and tertiary students:

Google Classroom LMS stands out with the highest ratings among both faculty and students, particularly among students who rated it as highly utilized (HU). This suggests that Google Classroom is the most preferred and effectively integrated LMS among the options provided, likely due to its user-friendly interface and comprehensive integration with other Google Workspace tools.

Canvas LMS is moderately utilized by both groups, with close mean ratings. Its robust feature set and ease of use might contribute to its popularity, making it a solid choice for both faculty and students.

LMS365 (Microsoft) shows a moderate level of utilization among students but only an undecided level among faculty. The integration with Microsoft 365 tools might make it more appealing to students who are more accustomed to these tools.

Moodle LMS has a low utilization rating among both groups. This could be due to its complex interface or the need for more training and support to maximize its potential.

NEO LMS is the least utilized platform, with both faculty and students rating it as low utilization. This suggests that it is not widely adopted or that users are not fully aware of its features and benefits.

Furthermore, the data also reveals Key Insights relative to the appreciation on each Learning Management System:

Google Classroom Dominance: The high utilization rates for Google Classroom indicate its effectiveness and popularity in supporting teaching and learning activities.

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Need for Improved Training and Support: The undecided or low utilization ratings for LMS365, Moodle, and NEO LMS suggest a need for better training and support to enhance user engagement and effectiveness.

Potential for Canvas LMS: With moderate utilization, Canvas LMS has a strong foundation but could benefit from targeted efforts to further increase its adoption and effectiveness.

Addressing Barriers: Identifying and addressing barriers to the effective use of less-utilized platforms like Moodle and NEO LMS could help improve their adoption rates and overall satisfaction.

Table 2.6

Extent of the Utilization of Educational Technology Systems of the Faculty / Tertiary Students

Indicators	**Faculty**			**Tertiary Student**			**Mean Difference**
	AWM	**VI**	**R**	**AWM**	**VI**	**R**	
2.1 Canvas LMS	3.53	MU	2	3.45	MU	3	0.08
2.2 Google Classroom LMS	3.75	MU	1	4.26	HU	1	0.51
2.3 LMS365 (Microsoft)	3.36	U	3	3.58	MU	2	0.22
2.4 Moodle LMS	2.77	U	4	2.62	U	4	0.15
2.5 NEO LMS	1.96	LU	5	2.18	LU	5	0.22
Composite Weighted Mean	**3.07**	**U**		**3.22**	**U**		**0.15**

Legend:

4.20 - 5.00 → Highly Utilized (HU)
3.40 - 4.19 → More Utilized (MU)
2.60 - 3.39 → Utilized (U)
1.80 - 2.59 → Low Utilized (LU)
1.00 - 1.79 → Not Utilized (NU)
AWM → Average Weighted Mean
VI → Verbal Interpretation
R → Rank

Question No. 3 What is the level of the tertiary students' learning performance in terms of:

Creativity

Table 3.1. shows the Level of the Tertiary Students' Learning Performance in Terms of Creativity. Enumerating the indicators and the significant of it in the distribution we have:

(1) Generate multiple solutions, ideas, or interpretations in response to a given task or problem: Faculty WM is 3.89 (Good - G), ranked 5.5, while students WM is 4.00 (G), ranked 8th. The mean difference is 0.11, indicating similar perceptions of creativity in generating solutions among both groups.

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(2) Demonstrate student-generated content, projects, or assignments produced using edtech tools: Faculty WM is 4.01 (G), ranked 1st, while students WM is 3.95 (G), ranked 10th. The mean difference is 0.06, suggesting that faculty rate this aspect slightly higher than students do. *(3) Demonstrate the ability to explore and utilize advanced features or functionalities of edtech tools to enhance creativity in learning tasks:* Faculty WM is 3.96 (G), ranked 2nd, while students WM is 4.09 (G), ranked 3rd. The mean difference is 0.13, with students rating this slightly higher. *(4) Apply creative thinking and problem-solving skills to tackle complex problems or challenges using educational technology:* Faculty WM is 3.93 (G), ranked 3rd, while students WM is 4.05 (G), ranked 4th. The mean difference is 0.12, showing similar high ratings.

Table 3.1.
Level of the Tertiary Students' Learning Performance in Terms of Creativity

Indicators	Faculty			Tertiary Student			Mean Difference
	WM	VI	R	WM	VI	R	
1. Generate multiple solutions, ideas, or interpretations in response to a given task or problem.	3.89	G	5.5	4.00	G	8	0.11
2. Demonstrate student-generated content, projects, or assignments produced using edtech tools.	4.01	G	1	3.95	G	10	0.06
3. Demonstrate the ability to explore and utilize advanced features or functionalities of edtech tools to enhance creativity in learning tasks.	3.96	G	2	4.09	G	3	0.13
4. Apply creative thinking and problem-solving skills to tackle complex problems or challenges using educational technology.	3.93	G	3	4.05	G	4	0.12
5. Articulate and communicate original ideas, concepts, or perspectives through multimedia presentations, digital storytelling, or other creative formats enabled by edtech tools.	3.84	G	8.5	3.98	G	9	0.14
6. Engage in collaborative projects or activities facilitated by edtech tools, fostering creativity through collective brainstorming, idea sharing, and co-creation.	3.87	G	7	4.04	G	5.5	0.17
7. Adapt to new tools, environments, or technologies, demonstrating flexibility and creativity in navigating learning opportunities presented by edtech tools.	3.83	G	10	4.12	G	1	0.29
8. Incorporate feedback from peers, instructors, or self- assessment processes to refine and enhance creative work produced using edtech tools.	3.89	G	5.5	4.04	G	5.5	0.15
9. Synthesize knowledge and concepts from diverse academic disciplines or domains to generate innovative solutions or perspectives within edtech-enhanced learning environments.	3.84	G	8.5	4.02	G	7	0.18

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10. Apply creative skills and knowledge gained through edtech-supported learning experiences to real-world contexts, demonstrating practical relevance and impact.	3.92	G	4	4.10	G	2	0.18
Average Weighted Mean	**3.90**	**G**		**4.04**	**G**		**0.14**

Legend:

4.20	- *5.00*	→	*Excellent (E)*
3.40	- *4.19*	→	*Good (G)*
2.60	- *3.39*	→	*Average (A)*
1.80	- *2.59*	→	*Fair (F)*
1.00	- *1.79*	→	*Poor (P)*
	WM	→	*Weighted Mean*
	VI	→	*Verbal Interpretation*
	R	→	*Rank*

(5) Articulate and communicate original ideas, concepts, or perspectives through multimedia presentations, digital storytelling, or other creative formats enabled by edtech tools: Faculty WM is 3.84 (G), ranked 8.5, while students WM is 3.98 (G), ranked 9th. The mean difference is 0.14, indicating close ratings. *(6) Adapt to new tools, environments, or technologies, demonstrating flexibility and creativity in navigating learning opportunities presented by edtech tools:* Faculty WM is 3.83 (G), ranked 10th, while students WM is 4.12 (G), ranked 1st. The mean difference is 0.29, showing a significant difference, with students perceiving themselves as highly adaptable and creative. *(7) Incorporate feedback from peers, instructors, or self-assessment processes to refine and enhance creative work produced using edtech tools:* Both faculty and students rate this indicator similarly, with faculty WM at 3.89 (G), ranked 5.5, and students WM at 4.04 (G), ranked 5.5. The mean difference is 0.15. *(9) Synthesize knowledge and concepts from diverse academic disciplines or domains to generate innovative solutions or perspectives within edtech-enhanced learning environments:* Faculty WM is 3.84 (G), ranked 8.5, while students WM is 4.02 (G), ranked 7th. The mean difference is 0.18. (10) *Apply creative skills and knowledge gained through edtech-supported learning experiences to real-world contexts, demonstrating practical relevance and impact:* Faculty WM is 3.92 (G), ranked 4th, while students WM is 4.10 (G), ranked 2nd. The mean difference is 0.18. *The Average Weighted Mean:* Faculty WM is 3.90 (G) while students WM is 4.04 (G), with a mean difference of 0.14. Both groups perceive students' learning performance in terms of creativity as good.

The data indicates that both faculty and students generally rate the creativity of students' learning performance positively, with an overall rating of "Good".

For Key Insight: (1) High Ratings on Creativity: The ratings across all indicators show strong agreement between faculty and students regarding the high level of creativity in student learning performance, particularly in the ability to explore advanced features of edtech tools and apply creative skills to real-world contexts. (2) Adaptability and Innovation: Students rate themselves particularly high in adapting to new tools and demonstrating flexibility in learning, suggesting confidence in their ability to

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navigate and leverage educational technologies creatively. (3) Slight Discrepancies: There are slight discrepancies where faculty and students differ, such as in the demonstration of student-generated content and projects. Faculty tend to rate this slightly higher, which could suggest a need for students to gain more confidence or visibility in showcasing their creative outputs. (4) Consistency in Feedback and Collaboration: Both groups rate the incorporation of feedback and engagement in collaborative projects similarly, indicating a shared understanding of the importance of these aspects in fostering creativity.

Overall Assessment: The composite results suggest that students are perceived to be highly creative in their learning, with educational technologies playing a significant role in enhancing their creativity. The slight differences in perceptions between faculty and students highlight areas where student confidence can be further boosted and where faculty can continue to support and recognize student creativity.

Critical Thinking

Table 3.2 shows the Level of the Tertiary Students' Learning Performance in Terms of Critical Thinking. Enumerating the indicators and the significant of it in the distribution we have: (1) Analyze complex problems, identify relevant information, and generate effective solutions using edtech tools: Faculty WM is 3.77 (Good - G), ranked 7.5, while students WM is 3.98 (G), ranked 8.5. The mean difference is 0.21, indicating similar perceptions of critical thinking in solving complex problems among both groups. *(2) Evaluate information and argue critically, distinguishing between reliable and unreliable sources, and drawing conclusions based on evidence:* Faculty WM is 3.69 (G), ranked 10th, while students WM is 3.98 (G), ranked 8.5. The mean difference is 0.29, suggesting that students rate their critical evaluation skills higher than faculty do. *(3) Break down information into its component parts, recognizing patterns, and making logical connections to facilitate understanding and problem-solving:* Faculty WM is 3.81 (G), ranked 4th, while students WM is 3.99 (G), ranked 7th. The mean difference is 0.18, showing strong agreement between both groups. *(4) Aware and apply metacognitive strategies to monitor and regulate one's own thinking processes, such as self-assessment, reflection, and goal-setting:*

Table 3.2
Level of the Tertiary Students' Learning Performance in Terms of Critical Thinking

Indicators	Faculty			Tertiary Student			Mean Difference
	WM	VI	R	WM	VI	R	
1. Analyze complex problems, identify relevant information, and generate effective solutions using edtech tools.	3.77	G	7.5	3.98	G	8.5	0.21
2. Evaluate information and argue critically, distinguishing between reliable and unreliable sources, and drawing conclusions based on evidence.	3.69	G	10	3.98	G	8.5	0.29

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3. Break down information into its component parts, recognizing patterns, and making logical connections to facilitate understanding and problem-solving.	3.81	G	4	3.99	G	7	0.18
4. Aware and apply metacognitive strategies to monitor and regulate one's own thinking processes, such as self-assessment, reflection, and goal-setting.	3.79	G	5.5	4.01	G	5.5	0.22
5. Locate, evaluate, and effectively use information from various sources, including digital resources accessed through edtech tools.	3.88	G	1	4.04	G	3	0.16
6. Construct and critique arguments, supporting claims with evidence, and engaging in reasoned discourse within online discussions or collaborative projects.	3.79	G	5.5	4.01	G	5.5	0.22
7. Formulate innovative and insightful questions or problem statements that challenge assumptions and stimulate critical inquiry.	3.85	G	3	3.96	G	10	0.11
8. Navigate digital environments, understanding digital tools' capabilities and limitations, and applying digital skills to analyze and solve problems effectively.	3.77	G	7.5	4.03	G	4	0.26
9. Engage in reflective practices to evaluate one's own learning processes, assess the validity of assumptions, and identify areas for improvement or further exploration.	3.76	G	9	4.07	G	2	0.31
10. Transfer and application of critical thinking skills across diverse academic disciplines or real-world contexts, demonstrating versatility and adaptability in problem-solving.	3.87	G	2	4.10	G	1	0.23
Average Weighted Mean	**3.80**	**G**		**4.02**	**G**		**0.22**

Legend:

4.20 - 5.00 → Excellent (E)
3.40 - 4.19 → Good (G)
2.60 - 3.39 → Average (A)
1.80 - 2.59 → Fair (F)
1.00 - 1.79 → Poor (P)
WM → Weighted Mean
VI → Verbal Interpretation
R → Rank

` Both groups rate this indicator highly, with faculty WM at 3.79 (G), ranked 5.5, and students WM at 4.01 (G), ranked 5.5. The mean difference is 0.22. *(5) Locate, evaluate, and effectively use information from various sources, including digital resources accessed through edtech tools:* Faculty WM is 3.88 (G), ranked 1st, while students WM is 4.04 (G), ranked 3rd. The mean difference is 0.16, indicating high ratings from both groups. *(6) Construct and critique arguments, supporting claims with evidence, and engaging in*

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reasoned discourse within online discussions or collaborative projects: Faculty WM is 3.79 (G), ranked 5.5, while students WM is 4.01 (G), ranked 5.5.

The mean difference is 0.22, showing similar high ratings. *(7) Formulate innovative and insightful questions or problem statements that challenge assumptions and stimulate critical inquiry:* Faculty WM is 3.85 (G), ranked 3rd, while students WM is 3.96 (G), ranked 10th. The mean difference is 0.11, indicating slight differences in rating. *(8) Navigate digital environments, understanding digital tools' capabilities and limitations, and applying digital skills to analyze and solve problems effectively:* Faculty WM is 3.77 (G), ranked 7.5, while students WM is 4.03 (G), ranked 4th. The mean difference is 0.26, with students rating themselves higher. *(9) Engage in reflective practices to evaluate one's own learning processes, assess the validity of assumptions, and identify areas for improvement or further exploration:* Faculty WM is 3.76 (G), ranked 9th, while students WM is 4.07 (G), ranked 2nd. The mean difference is 0.31, suggesting that students rate their reflective practices higher. *(10) Transfer and application of critical thinking skills across diverse academic disciplines or real-world contexts, demonstrating versatility and adaptability in problem-solving:* Faculty WM is 3.87 (G), ranked 2nd, while students WM is 4.10 (G), ranked 1st. The mean difference is 0.23. *The Average Weighted Mean:* Faculty WM is 3.80 (G) while students WM is 4.02 (G), with a mean difference of 0.22. Both groups perceive students' learning performance in terms of critical thinking as good.

The data indicates that both faculty and students generally rate the critical thinking skills of students positively, with an overall rating of "Good" (G).

For Key Insights: (1) High Ratings on Critical Thinking: The ratings across all indicators show strong agreement between faculty and students regarding the high level of critical thinking skills in student learning performance. Both groups recognize the importance of evaluating information, constructing arguments, and applying digital skills effectively. (2) Reflective Practices and Problem Solving: Students rate themselves particularly high in engaging in reflective practices and transferring critical thinking skills across diverse contexts, suggesting confidence in their ability to assess and improve their learning processes. (3) Slight Discrepancies: There are slight discrepancies where students and faculty differ, such as in evaluating information critically and navigating digital environments. Students tend to rate themselves higher in these areas, which could suggest a greater confidence in their abilities or a difference in perceptions. (4) Consistency in Argumentation and Inquiry: Both groups rate the ability to construct and critique arguments and formulate insightful questions similarly, indicating a shared understanding of the importance of these aspects in critical thinking.

Overall Assessment: The composite results suggest that students are perceived to have strong critical thinking skills, with educational technologies playing a significant role in enhancing these abilities. The slight differences in perceptions between faculty and students highlight areas where student confidence can be further boosted and where faculty can continue to support and recognize student critical thinking.

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Collaboration

Table 3.3 shows the Level of the Tertiary Students' Learning Performance in Terms of collaboration. Enumerating the indicators and the significant of it in the distribution we have: *(1) Communicate clearly, respectfully, and effectively with peers in collaborative tasks facilitated by edtech tools, such as online discussions or group projects:* Faculty WM is 3.99 (Good - G), ranked 5th, while students WM is 4.23 (Excellent - E), ranked 1st. The mean difference is 0.24, indicating that students rate their communication skills higher than faculty do. *(2) Demonstrate engagement and contribution to collaborative activities, including sharing ideas, providing feedback, and contributing to group decision-making processes:* Faculty WM is 4.04 (G), ranked 1.5, while students WM is 4.17 (G), ranked 3.5. The mean difference is 0.13, suggesting similar perceptions of engagement and contribution in collaborative activities.

Table 3.3
Level of the Tertiary Students' Learning Performance in Terms of Collaboration

Indicators	Faculty			Tertiary Student			Mean Difference
	WM	VI	R	WM	VI	R	
1. Communicate clearly, respectfully, and effectively with peers in collaborative tasks facilitated by edtech tools, such as online discussions or group projects.	3.99	G	5	4.23	E	1	0.24
2. Demonstrate engagement and contribution to collaborative activities, including sharing ideas, providing feedback, and contributing to group decision-making processes.	4.04	G	1.5	4.17	G	3.5	0.13
3. Collaborate within a team, coordinating efforts, allocating tasks, and leveraging individual strengths to achieve common goals using edtech platforms.	4.03	G	3	4.13	G	6	0.10
4. Address conflicts or disagreements constructively within collaborative settings, seeking compromise and consensus to maintain positive group dynamics.	3.91	G	10	4.05	G	10	0.14
5. Take shared responsibility for the success of collaborative projects, including meeting deadlines, fulfilling assigned roles, and supporting team members as needed.	3.99	G	5	4.20	E	2	0.21
6. Engage in peer-to-peer learning experiences facilitated by edtech tools, including peer tutoring, peer review, and mutual assistance in understanding concepts or completing tasks	3.97	G	7	4.11	G	7	0.14
7. Use collaborative features of edtech platforms, such as shared documents, virtual whiteboards,	4.04	G	1.5	4.09	G	9	0.05

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real-time messaging, and video conferencing, to facilitate group work and communication.							
8. Engage in collaborative activities that bridge disciplinary boundaries, fostering interdisciplinary perspectives, and integrating diverse knowledge and expertise from multiple fields.	3.96	G	8	4.10	G	8	0.14
9. To be sensitive to cultural differences and diverse perspectives within collaborative settings, demonstrating respect, empathy, and inclusivity towards peers from varied backgrounds.	3.95	G	9	4.15	G	5	0.20
10. Engage in reflective practices to evaluate the effectiveness of collaborative processes, identify strengths and areas for improvement, and apply lessons learned to future collaborative endeavors.	3.99	G	5	4.17	G	3.5	0.18
Average Weighted Mean	**3.99**	**G**		**4.14**	**G**		**0.15**

Legend:

4.20	-	*5.00*	→	*Excellent (E)*
3.40	-	*4.19*	→	*Good (G)*
2.60	-	*3.39*	→	*Average (A)*
1.80	-	*2.59*	→	*Fair (F)*
1.00	-	*1.79*	→	*Poor (P)*
		WM	→	*Weighted Mean*
		VI	→	*Verbal Interpretation*
		R	→	*Rank*

(3) Collaborate within a team, coordinating efforts, allocating tasks, and leveraging individual strengths to achieve common goals using edtech platforms: Faculty WM is 4.03 (G), ranked 3rd, while students WM is 4.13 (G), ranked 6th. The mean difference is 0.10, indicating close ratings from both groups. *(4) Address conflicts or disagreements constructively within collaborative settings, seeking compromise and consensus to maintain positive group dynamics:* Faculty WM is 3.91 (G), ranked 10th, while students WM is 4.05 (G), ranked 10th. The mean difference is 0.14, showing agreement on this indicator. *(5) Take shared responsibility for the success of collaborative projects, including meeting deadlines, fulfilling assigned roles, and supporting team members as needed:* Faculty WM is 3.99 (G), ranked 5th, while students WM is 4.20 (E), ranked 2nd. The mean difference is 0.21, indicating students perceive themselves to take more responsibility in collaborative projects. *(6) Engage in peer-to-peer learning experiences facilitated by edtech tools, including peer tutoring, peer review, and mutual assistance in understanding concepts or completing tasks:* Both groups rate this indicator similarly, with faculty WM at 3.97 (G), ranked 7th, and students WM at 4.11 (G), ranked 7th. The mean difference is 0.14. *(7) Use collaborative features of edtech platforms, such as shared documents, virtual whiteboards, real-time messaging, and video conferencing, to facilitate group work and communication:* Faculty WM is 4.04 (G), ranked 1.5, while students WM is 4.09 (G), ranked 9th. The mean difference is 0.05, showing close ratings from both groups. *(8) Engage in collaborative activities that bridge disciplinary boundaries, fostering interdisciplinary*

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perspectives, and integrating diverse knowledge and expertise from multiple fields: Faculty WM is 3.96 (G), ranked 8th, while students WM is 4.10 (G), ranked 8th. The mean difference is 0.14. *(9) To be sensitive to cultural differences and diverse perspectives within collaborative settings, demonstrating respect, empathy, and inclusivity towards peers from varied backgrounds:* Faculty WM is 3.95 (G), ranked 9th, while students WM is 4.15

(G), ranked 5th. The mean difference is 0.20. *(10) Engage in reflective practices to evaluate the effectiveness of collaborative processes, identify strengths and areas for improvement, and apply lessons learned to future collaborative endeavors:* Faculty WM is 3.99 (G), ranked 5th, while students WM is 4.17 (G), ranked 3.5. The mean difference is 0.18, indicating students rate themselves slightly higher in reflective practices. *The Average Weighted Mean:* Faculty WM is 3.99 (G) while students WM is 4.14 (G), with a mean difference of 0.15. Both groups perceive students' learning performance in terms of collaboration as good.

The data indicates that both faculty and students generally rate the collaboration skills of students positively, with an overall rating of "Good" (G).

For Key Insights: (1) High Ratings on Collaboration: The ratings across all indicators show strong agreement between faculty and students regarding the high level of collaboration skills in student learning performance. Both groups recognize the importance of effective communication, engagement, and contribution in collaborative activities. (2) Communication and Responsibility: Students rate themselves particularly high in communication and taking shared responsibility for collaborative projects, suggesting confidence in their ability to work effectively with peers and fulfill their roles. (3) Slight Discrepancies: There are slight discrepancies where students and faculty differ, such as in communication and sensitivity to cultural differences. Students tend to rate themselves higher in these areas, which could suggest greater confidence in their collaborative abilities or differences in perception. (4) Consistency in Engagement and Use of Edtech Tools: Both groups rate the engagement in collaborative activities and the use of edtech tools for collaboration similarly, indicating a shared understanding of the importance of these aspects in fostering collaboration.

Overall Assessment: The composite results suggest that students are perceived to have strong collaboration skills, with educational technologies playing a significant role in enhancing these abilities. The slight differences in perceptions between faculty and students highlight areas where student confidence can be further boosted and where faculty can continue to support and recognize student collaboration.

Communication

Table 3.4. shows the Level of the Tertiary Students' Learning Performance in Terms of Communication. Enumerating the indicators and the significant of it in the distribution we have:

(1) Articulate ideas, questions, and responses clearly and effectively using written or verbal communication facilitated by edtech tools: Faculty WM is 4.01 (Good - G), ranked 9th, while students WM is 4.12 (G), ranked 7th. The mean difference is 0.11, indicating similar perceptions of clarity and

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effectiveness in communication among both groups. *(2) Listen attentively to peers, instructors, or multimedia content within digital learning environments, demonstrating comprehension and engagement:* Faculty WM is 4.03 (G), ranked 8th, while students WM is 4.08 (G), ranked 8th. The mean difference is 0.05, showing agreement on attentive listening skills. *(3) Convey information succinctly and logically, organizing thoughts and arguments in a coherent manner to enhance understanding and engagement:* Faculty WM is 3.97 (G), ranked 10th, while students WM is 4.02 (G), ranked 10th. The mean difference is 0.05, indicating close ratings from both groups. *(4) Adapt communication style and format to different modes (e.g., written, verbal, visual) and digital platforms (e.g., discussion forums, video conferencing, multimedia presentations):* Faculty WM is 4.05 (G), ranked 6th, while students WM is 4.18 (G), ranked 5th. The mean difference is 0.13, suggesting students perceive themselves as slightly better at adapting communication styles. *(5) Engage in interactive communication exchanges with peers, instructors, or external stakeholders within collaborative projects, online discussions, or virtual classrooms:* Faculty WM is 4.04 (G), ranked 7th, while students WM is 4.07 (G), ranked 9th. The mean difference is 0.03, indicating close ratings from both groups.

Table 3.4

Level of the Tertiary Students' Learning Performance in Terms of Communication

Indicators	**Faculty**			**Tertiary Student**			**Mean Difference**
	WM	**VI**	**R**	**WM**	**VI**	**R**	
1. Articulate ideas, questions, and responses clearly and effectively using written or verbal communication facilitated by edtech tools.	4.01	G	9	4.12	G	7	0.11
2. Listen attentively to peers, instructors, or multimedia content within digital learning environments, demonstrating comprehension and engagement.	4.03	G	8	4.08	G	8	0.05
3. Convey information succinctly and logically, organizing thoughts and arguments in a coherent manner to enhance understanding and engagement.	3.97	G	10	4.02	G	10	0.05
4. Adapt communication style and format to different modes (e.g., written, verbal, visual) and digital platforms (e.g., discussion forums, video conferencing, multimedia presentations).	4.05	G	6	4.18	G	5	0.13
5. 5. Engage in interactive communication exchanges with peers, instructors, or external stakeholders within collaborative projects, online discussions, or virtual classrooms.	4.04	G	7	4.07	G	9	0.03
6. Use digital communication tools and platforms, such as email, messaging apps, virtual meeting software, and social media, to facilitate communication and collaboration.	4.17	G	1	4.26	E	1	0.09
7. Provide constructive feedback to peers, instructors, or group members, and respond thoughtfully to feedback	4.08	G	4.5	4.13	G	6	0.05

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received, fostering a culture of continuous improvement and mutual support.							
8. Demonstrate of respect, empathy, and inclusivity in communication interactions, recognizing and valuing diverse perspectives, backgrounds, and communication styles.	4.15	G	2	4.22	E	3	0.07
9. Adhere to professional communication norms and etiquette within digital learning environments, including proper use of language, tone, and formatting in written and verbal communication.	4.11	G	3	4.25	E	2	0.14
10. Analyze critically and evaluate communication content, including written texts, multimedia presentations, and online discussions, identifying key points, assumptions, and implications.	4.08	G	4.5	4.21	E	4	0.13
Average Weighted Mean	**4.07**	**G**		**4.16**	**G**		**0.09**

Legend:

4.20	-	*5.00*	→	*Excellent (E)*
3.40	-	*4.19*	→	*Good (G)*
2.60	-	*3.39*	→	*Average (A)*
1.80	-	*2.59*	→	*Fair (F)*
1.00	-	*1.79*	→	*Poor (P)*
		WM	→	*Weighted Mean*
		VI	→	*Verbal Interpretation*
		R	→	*Rank*

(6) Use digital communication tools and platforms, such as email, messaging apps, virtual meeting software, and social media, to facilitate communication and collaboration: Faculty WM is 4.17 (G), ranked 1st, while students WM is 4.26 (Excellent - E), ranked 1st. The mean difference is 0.09, showing high ratings from both groups. *(7) Provide constructive feedback to peers, instructors, or group members, and respond thoughtfully to feedback received, fostering a culture of continuous improvement and mutual support:* Faculty WM is 4.08 (G), ranked 4.5, while students WM is 4.13 (G), ranked 6th. The mean difference is 0.05, indicating similar perceptions of constructive feedback.

(8) Demonstrate respect, empathy, and inclusivity in communication interactions, recognizing and valuing diverse perspectives, backgrounds, and communication styles: Faculty WM is 4.15 (G), ranked 2nd, while students WM is 4.22 (E), ranked 3rd. The mean difference is 0.07, showing high ratings for respectful and inclusive communication. *(9) Adhere to professional communication norms and etiquette within digital learning environments, including proper use of language, tone, and formatting in written and verbal communication:* Faculty WM is 4.11 (G), ranked 3rd, while students WM is 4.25 (E), ranked 2nd. The mean difference is 0.14, indicating students rate themselves slightly higher in professional communication. *(10) Analyze critically and evaluate communication content, including written texts, multimedia presentations, and online discussions, identifying key points, assumptions, and implications:*

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Both groups rate this indicator similarly, with faculty WM at 4.08 (G), ranked 4.5, and students WM at 4.21 (E), ranked 4th. The mean difference is 0.13. *The Average Weighted Mean:* Faculty WM is 4.07 (G) while students WM is 4.16 (G), with a mean difference of 0.09. Both groups perceive students' learning performance in terms of communication as good.

The data indicates that both faculty and students generally rate the communication skills of students positively, with an overall rating of "Good" (G).

For Key Insights: (1) High Ratings on Communication Skills: The ratings across all indicators show strong agreement between faculty and students regarding the high level of communication skills in student learning performance. Both groups recognize the importance of clear, respectful, and effective communication. (2) Effective Use of Digital Tools: Both faculty and students highly rate the use of digital communication tools and platforms, highlighting their importance in facilitating communication and collaboration in digital learning environments. (3) Constructive Feedback and Professional Communication: Both groups emphasize the importance of providing constructive feedback and adhering to professional communication norms, with students rating themselves slightly higher in these areas. (4) Respect and Inclusivity: High ratings for respect, empathy, and inclusivity in communication interactions indicate a positive communication culture among students. (5) Slight Discrepancies: There are slight discrepancies where students and faculty differ, such as in adapting communication styles and professional communication. Students tend to rate themselves higher, which could suggest greater confidence in their communication abilities or differences in perception.

Overall Assessment: The composite results suggest that students are perceived to have strong communication skills, with educational technologies playing a significant role in enhancing these abilities. The slight differences in perceptions between faculty and students highlight areas where student confidence can be further boosted and where faculty can continue to support and recognize student communication.

Technology Literacy

Table 3.5 shows the Level of the Tertiary Students' Learning Performance in Terms of Technology Literacy. Enumerating the indicators and the significant of it in the distribution we have:

(1) Demonstrate proficiency in navigating and using a variety of educational technology tools and platforms relevant to their academic studies: Faculty WM is 4.19 (Good - G), ranked 3rd, while students WM is 4.20 (Excellent - E), ranked 8th. The mean difference is 0.01, indicating similar perceptions of proficiency in technology use. *(2) Locate, evaluate, and effectively use digital information and resources to support learning objectives, including discerning credible sources and citing references appropriately:* Faculty WM is 4.16 (G), ranked 5.5, while students WM is 4.26 (E), ranked 3rd. The mean difference is 0.10, showing higher ratings from students for this indicator. *(3) Understand ethical and responsible use of technology, including issues related to privacy, security, copyright, and digital rights:* Faculty WM is 4.19 (G), ranked 3rd, while students WM is 4.22 (E), ranked 5.5. The mean difference is 0.03, indicating close ratings from both groups.

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Table 3.5

Level of the Tertiary Students' Learning Performance in Terms of Technology Literacy

Indicators	Faculty			Tertiary Student			Mean Difference
	WM	VI	R	WM	VI	R	
1. Demonstrate proficiency in navigating and using a variety of educational technology tools and platforms relevant to their academic studies.	4.19	G	3	4.20	E	8	0.01
2. Locate, evaluate, and effectively use digital information and resources to support learning objectives, including discerning credible sources and citing references appropriately.	4.16	G	5.5	4.26	E	3	0.10
3. Understand ethical and responsible use of technology, including issues related to privacy, security, copyright, and digital rights.	4.19	G	3	4.22	E	5.5	0.03
4. Create, editing, and presenting multimedia content using digital tools, such as video editing software, graphic design tools, and presentation software.	4.23	E	1	4.27	E	1.5	0.04
5. Interpret and analyze data presented in various digital formats, including tables, charts, and graphs, and draw 8. meaningful conclusions.	4.19	G	3	4.25	E	4	0.06
6. Identify and troubleshoot common technical issues encountered while using educational technology tools and platforms, independently or collaboratively.	4.12	G	8	4.09	G	9	0.03
7. Adapt to new technologies and digital tools as they emerge, demonstrating a growth mindset and lifelong learning skills.	4.16	G	5.5	4.27	E	1.5	0.11
8. Understand coding and programming concepts, including computational thinking, algorithmic problem-solving, and coding languages relevant to their field of study.	4.01	G	10	3.99	G	10	0.02
9. Participate in collaborative projects or activities that leverage digital tools and platforms to facilitate communication, coordination, and knowledge sharing among peers.	4.09	G	9	4.22	E	5.5	0.13
10. Create and maintain digital portfolio showcasing academic work, achievements, and skills acquired through the use of educational technology tools and platforms.	4.13	G	7	4.21	E	7	0.08
Average Weighted Mean	**4.15**	**G**		**4.20**	**E**		**0.05**

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Legend:

4.20	-	*5.00*	→	*Excellent (E)*
3.40	-	*4.19*	→	*Good (G)*
2.60	-	*3.39*	→	*Average (A)*
1.80	-	*2.59*	→	*Fair (F)*
1.00	-	*1.79*	→	*Poor (P)*
		WM	→	*Weighted Mean*
		VI	→	*Verbal Interpretation*
		R	→	*Rank*

(4) Create, edit, and present multimedia content using digital tools, such as video editing software, graphic design tools, and presentation software: Faculty WM is 4.23 (E), ranked 1st, while students WM is 4.27 (E), ranked 1.5. The mean difference is 0.04, showing high ratings from both groups for multimedia content creation. *(5) Interpret and analyze data presented in various digital formats, including tables, charts, and graphs, and draw meaningful conclusions:* Faculty WM is 4.19 (G), ranked 3rd, while students WM is 4.25 (E), ranked 4th. The mean difference is 0.06, indicating close ratings from both groups. *(6) Identify and troubleshoot common technical issues encountered while using educational technology tools and platforms, independently or collaboratively:* Faculty WM is 4.12 (G), ranked 8th, while students WM is 4.09 (G), ranked 9th. The mean difference is 0.03, showing agreement on troubleshooting skills. *(7) Adapt to new technologies and digital tools as they emerge, demonstrating a growth mindset and lifelong learning skills:* Faculty WM is 4.16 (G), ranked 5.5, while students WM is 4.27 (E), ranked 1.5. The mean difference is 0.11, indicating higher ratings from students for adaptability. *(8) Understand coding and programming concepts, including computational thinking, algorithmic problem-solving, and coding languages relevant to their field of study:* Faculty WM is 4.01 (G), ranked 10th, while students WM is 3.99 (G), ranked 10th. The mean difference is 0.02, showing close ratings from both groups. *(9) Participate in collaborative projects or activities that leverage digital tools and platforms to facilitate communication, coordination, and knowledge sharing among peers:* Faculty WM is 4.09 (G), ranked 9th, while students WM is 4.22 (E), ranked 5.5. The mean difference is 0.13, showing higher ratings from students for collaboration. *(10) Create and maintain digital portfolios showcasing academic work, achievements, and skills acquired through the use of educational technology tools and platforms:* Faculty WM is 4.13 (G), ranked 7th, while students WM is 4.21 (E), ranked 7th. The mean difference is 0.08, showing agreement on the importance of digital portfolios. *The Average Weighted Mean:* Faculty WM is 4.15 (G) while students WM is 4.20 (E), with a mean difference of 0.05. Both groups perceive students' learning performance in terms of technology literacy as good to excellent.

The data indicates that both faculty and students generally rate the technology literacy skills of students positively, with an overall rating ranging from "Good" (G) to "Excellent" (E).

For Key Insights: (1) High Ratings on Technology Proficiency: The ratings across all indicators show strong agreement between faculty and students regarding the high level of technology literacy in student learning performance. Both groups recognize the importance of proficiency in using educational technology tools and platforms. (2) Effective Use of Digital Resources: Students rate themselves highly in

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locating, evaluating, and effectively using digital information and resources, highlighting their confidence in discerning credible sources and citing references appropriately. (3) Ethical and Responsible Technology Use: Both groups emphasize the importance of understanding ethical and responsible use of technology, including issues related to privacy, security, copyright, and digital rights. (4) Adaptability and Growth Mindset: Students rate themselves particularly high in adapting to new technologies and demonstrating a growth mindset, suggesting confidence in their ability to navigate and leverage new digital tools. (5) Slight Discrepancies: There are slight discrepancies where students and faculty differ, such as in collaboration and adaptability to new technologies. Students tend to rate themselves higher, which could suggest greater confidence in their technology literacy skills or differences in perception.

Overall Assessment: The composite results suggest that students are perceived to have strong technology literacy skills, with educational technologies playing a significant role in enhancing these abilities. The slight differences in perceptions between faculty and students highlight areas where student confidence can be further boosted and where faculty can continue to support and recognize student technology literacy

Summary

Table 3.6 shows the Level of the Tertiary Students' Learning Performance. Enumerating the indicators and the significant of it in the distribution we have:

(1) Creativity: Faculty AWM is 3.90 (Good - G), ranked 4th, while students AWM is 4.04 (G), also ranked 4th. The mean difference is 0.14, indicating similar perceptions of creativity between faculty and students. (2) Critical Thinking: Faculty AWM is 3.80 (G), ranked 5th, while students AWM is 4.02 (G), also ranked 5th. The mean difference is 0.22, suggesting students rate their critical thinking skills slightly higher than faculty. (3) Collaboration: Faculty AWM is 3.99 (G), ranked 3rd, while students AWM is 4.14 (G), also ranked 3rd. The mean difference is 0.15, showing close agreement on collaboration skills. (4) Communication: Faculty AWM is 4.07 (G), ranked 2nd, while students AWM is 4.16 (G), also ranked 2nd. The mean difference is 0.09, indicating very similar perceptions of communication skills.

Table 3.6
Level of the Tertiary Students' Learning Performance

Indicators	Faculty			Tertiary Student			Mean Difference
	AWM	VI	R	AWM	VI	R	
3.1 Creativity	3.90	G	4	4.04	G	4	0.14
3.2 Critical Thinking	3.80	G	5	4.02	G	5	0.22
3.3 Collaboration	3.99	G	3	4.14	G	3	0.15
3.4 Communication	4.07	G	2	4.16	G	2	0.09

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3.5 Technology Literacy	4.15	G	1	4.20	E	1	0.05
Composite Weighted Mean	**3.98**	**G**		**4.11**	**G**		**0.13**

Legend:

4.20 - 5.00 → Excellent (E)
3.40 - 4.19 → Good (G)
2.60 - 3.39 → Average (A)
1.80 - 2.59 → Fair (F)
1.00 - 1.79 → Poor (P)
AWM → Average Weighted Mean
VI → Verbal Interpretation
R → Rank

(5) Technology Literacy: Faculty AWM is 4.15 (G), ranked 1st, while students AWM is 4.20 (Excellent - E), also ranked 1st. The mean difference is 0.05, showing very close agreement on technology literacy, with students rating it slightly higher. The Composite Weighted Mean: Faculty AWM is 3.98 (G) while students AWM is 4.11 (G), with a mean difference of 0.13. Both groups perceive students' learning performance overall as good.The data indicates that both faculty and students generally rate the learning performance of students positively, with an overall rating of "Good" (G).

For Key Insights: (1) Consistent High Performance: Across all indicators, both faculty and students rate the learning performance as good, indicating a high level of overall performance in creativity, critical thinking, collaboration, communication, and technology literacy. (2) Technology Literacy: This indicator stands out as the highest rated by both faculty and students, with students rating it as excellent. This suggests that students are particularly proficient in using educational technology tools and platforms, which is essential in modern education. (3) Critical Thinking: Although rated as good, there is a slightly larger mean difference for critical thinking, with students rating themselves higher than faculty. This could indicate a greater confidence among students in their critical thinking abilities or a recognition of the importance of these skills in their academic success. (4) Communication and Collaboration: These skills are highly valued and similarly rated by both groups, reflecting the importance of effective communication and teamwork in academic settings. (5) Slight Differences in Perception: The mean differences between faculty and student ratings are generally small, indicating close agreement but also highlighting areas where students may have slightly more confidence in their abilities.

Overall Assessment: The composite results suggest that students are perceived to have strong learning performance across all indicators, with educational technologies playing a significant role in enhancing these abilities. The high ratings in technology literacy, communication, and collaboration indicate that students are well-equipped to navigate and succeed in digital learning environments. The slight differences in perceptions between faculty and students highlight areas where student confidence can be further boosted and where faculty can continue to support and recognize student learning performance.

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Question No. 4 Is there a significant relationship between the extent of the utilization of Educational Technology System and the level of the tertiary students' learning performance?

Table 4.1 reveals a statistically significant but low positive relationship between the utilization of educational technology systems and tertiary students' learning performance as assessed by faculty. With a mean score of 3.07 for technology utilization and 3.98 for student performance, the results show moderate usage of educational technology and relatively high student performance levels. The Pearson correlation coefficient (r) of 0.32 indicates a low positive relationship, suggesting that while higher use of educational technology is associated with better student performance, the strength of this association is weak.

Table 4.1

Significant Relationship Between the Extent of the Utilization of Educational Technology System and the Level of the Tertiary Students' Learning Performance as Assessed by Faculty

Indicators	**Mean**	**SD**	**Pearson r**	**Computed t- Value**	**Decision**	**Remarks**
Extent of the Utilization of Educational Technology System	3.07	0.87	0.32	-8.289	Reject Ho	Significant
Level of the Tertiary Students' Learning Performance	3.98	0.75	Low Relationship			
t-Critical/Tabular Value at 0.05 Level of Significance (α)= ±1.993						

Legend:

The Value of r	***Verbal Interpretation***
± 1	*Perfectly Relationship*
± 0.81 to ± 0.99	*Very High Relationship*
± 0.71 to ± 0.80	*High Relationship*
± 0.41 to ± 0.70	*Moderate Relationship*
± 0.21 to ± 0.40	*Low Relationship*
± 0.01 to ± 0.20	*Slight Relationship*
0	*No Relationship*

The computed t-value of -8.289 exceeds the t-critical value of ±1.993 with 0.05 level of significance and p-value is less than 5%, leading to the rejection of the null hypothesis therefore there is a significant relationship between the extent of the utilization of educational technology system and the level of the tertiary students' learning performance as assessed by faculty. Thus, while educational technology use does

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have an impact on learning outcomes, it may not be a strong determining factor in performance, and other influences could also be at play.

Table 4.2

Significant Relationship Between the Extent of the Utilization of Educational Technology System and the Level of the Tertiary Students' Learning Performance as Assessed by Tertiary Students

Indicators	**Mean**	**SD**	**Pearson r**	**Computed t-Value**	**Decision**	**Remarks**
Extent of the Utilization of Educational Technology System	3.22	0.81	0.35	-13.769	Reject Ho	Significant
Level of the Tertiary Students' Learning Performance	4.11	063	Low Relationship			
t-Critical/Tabular Value at 0.05 Level of Significance (α)= ±1.975						

Legend:

The Value of r	***Verbal Interpretation***
±1	*Perfectly Relationship*
±0.81 to ±0.99	*Very High Relationship*
±0.71 to ±0.80	*High Relationship*
±0.41 to ±0.70	*Moderate Relationship*
±0.21 to ±0.40	*Low Relationship*
±0.01 to ±0.20	*Slight Relationship*
0	*No Relationship*

Table 4.2 shows a statistically significant but low positive relationship between the extent of educational technology utilization and tertiary students' self-assessed learning performance. The mean for technology utilization is 3.22 with a standard deviation of 0.81, while the mean for students' learning performance is notably higher at 4.11 with a standard deviation of 0.63. The Pearson correlation coefficient (r) is 0.35, indicating a low relationship, meaning that while increased use of educational technology is associated with a slight improvement in learning performance, the connection is weak.

The computed t-value of -13.769 surpasses the critical t-value of ±1.975 at the 0.05 significance level and p-value is less than 5%, leading to the rejection of the null hypothesis therefore there is a significant relationship between the extent of the utilization of educational technology system and the level of the tertiary students' learning performance as assessed by tertiary students. This suggests that while educational technology use may positively influence learning outcomes, it is not a strong predictor of performance on its own.

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Question No. 5 Is there a significant difference between the assessment of the faculty and tertiary students in the use of Educational Technology Systems?

Table 5.1 presents the analysis of potential differences in the assessments of educational technology system utilization between faculty and tertiary students. Faculty members rated the extent of technology utilization with a mean score of 3.07 and a standard deviation of 0.87, while students rated it slightly higher, with a mean of 3.22 and a standard deviation of 0.81. Although there is a minor difference in mean ratings, the computed F-value of 1.588 falls below the critical value of ±3.881 at the 0.05 level of significance, leading to the acceptance of the null hypothesis. This result indicates that there is no statistically significant difference between faculty and students' perceptions of how educational technology systems are used. Both groups generally align in their assessments, suggesting a shared understanding of the extent to which these systems are integrated into the educational environment.

Table 5.1

Significant Difference Between the Assessment of the Faculty and Tertiary Students in the Use of Educational Technology Systems

Respondent	**Mean**	**SD**	**Computed F- Value**	**Decision**	**Remarks**
Faculty	3.07	0.87	1.588	Accept Ho	Not Significant
Tertiary Student	3.22	0.81			
F-Critical/Tabular Value at 0.05 Level of Significance (α)= ±3.881					

The similarity in perspectives may reflect consistent exposure to, and experiences with, educational technology across both groups, suggesting that both faculty and students have comparable views on the current level of technology use in their academic settings.

Question No. 6 Is there a significant difference in the extent of utilization of the Educational Technology System of the faculty and student - respondents when grouped according to their profile?

Table 6.1 shows that there is no statistically significant difference in the extent of utilization of various Learning Management Systems (LMS) among faculty respondents when grouped by age.

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Table 6.1

Significant Difference in the Extent of Utilization of the Educational Technology System of the Faculty-Respondents When Grouped According to their Age

Indicators	**Mean**	**Group**				**Computed F – Value**	**Decision**	**Remarks**
	SD	**A**	**B**	**C**	**D**			
Canvas LMS	Mean	3.78	3.50	3.87	3.35	0.901	Accept Ho	Not Significant
	SD	0.55	1.26	0.96	1.13			
Google Classroom LMS	Mean	3.70	4.07	3.92	3.51	1.237	Accept Ho	Not Significant
	SD	0.82	1.04	1.10	1.15			
LMS365 (Microsoft)	Mean	3.52	3.80	2.98	3.27	1.302	Accept Ho	Not Significant
	SD	0.69	1.29	1.32	1.33			
Moodle LMS	Mean	2.44	2.96	2.41	2.89	0.655	Accept Ho	Not Significant
	SD	1.33	1.53	1.25	1.40			
NEO LMS	Mean	2.10	2.06	1.68	2.01	0.380	Accept Ho	Not Significant
	SD	0.98	1.37	1.00	1.22			
Utilization of the Educational Technology System of the Faculty-Respondents	Mean	3.11	3.28	2.97	3.00	0.494	Accept Ho	Not Significant
	SD	0.72	0.89	0.82	0.92			
F-Critical/Tabular Value at 0.05 Level of Significance (α) =2.734								

Legend:

A → *25 years and below*

B → *26 – 35*

C → *36 – 45*

D → *46 and above*

This suggests that age does not significantly affect how faculty members use educational technology systems, implying that usage patterns are consistent across different age groups. The lack of significant variation may reflect a shared level of access, familiarity, or institutional requirements that standardize LMS use among faculty members, regardless of age.

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Table 6.2

Significant Difference in the Extent of Utilization of the Educational Technology System of the Faculty-Respondents When Grouped According to their Sex

Indicators	Mean	Group		Computed F-Value	Decision	Remarks
	SD	A	B			
Canvas LMS	Mean	3.75	3.29	3.382	Accept Ho	Not Significant
	SD	0.83	1.31			
Google Classroom LMS	Mean	3.67	3.83	0.397	Accept Ho	Not Significant
	SD	0.98	1.24			
LMS365 (Microsoft)	Mean	3.47	3.23	0.616	Accept Ho	Not Significant
	SD	1.18	1.42			
Moodle LMS	Mean	2.86	2.68	0.313	Accept Ho	Not Significant
	SD	1.33	1.47			
NEO LMS	Mean	2.08	1.82	0.945	Accept Ho	Not Significant
	SD	1.18	1.20			
Utilization of the Educational Technology System of the Faculty-Respondents	Mean	3.17	2.97	0.960	Accept Ho	Not Significant
	SD	0.74	0.99			
F-Critical/Tabular Value at 0.05 Level of Significance (α) =3.972						

Legend:

A → *Female*

B → *Male*

Table 6.2 presents an analysis of the differences in educational technology system utilization among faculty respondents when grouped by sex. The data compares mean scores for each Learning Management System (LMS)—including Canvas, Google Classroom, LMS365, Moodle, and NEO—between female (Group A) and male (Group B) respondents, examining whether there is a statistically significant difference in usage patterns based on sex.

The mean scores for Canvas LMS utilization are slightly higher among females (3.75) than males (3.29), while Google Classroom usage shows a modestly higher mean for males (3.83) compared to females (3.67). Similarly, minor differences are observed in LMS365 and Moodle, with males and females having

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comparable scores, indicating no substantial deviation in usage. For NEO LMS, females have a mean of 2.08, while males have a mean of 1.82. Despite these slight variations, none of the computed F-values exceed the critical value of 3.972 at the 0.05 level of significance.

With F-values for all LMS platforms falling well below this critical threshold, the null hypothesis is accepted across all indicators, indicating that there is no statistically significant difference in LMS usage between female and male faculty respondents. The overall mean utilization of educational technology systems is also consistent between the two groups, with females at 3.17 and males at 2.97, accompanied by an F-value of 0.960, further supporting the conclusion of no significant difference based on sex.

These findings suggest that the faculty's engagement with educational technology systems is generally uniform across sexes. This uniformity may be attributed to institutional policies, training, and equal access to technology resources provided to all faculty members, which likely minimize any disparities in LMS usage based on sex. Such consistency highlights that both female and male faculty members are similarly equipped and inclined to integrate educational technology into their teaching practices, promoting a balanced approach to utilizing digital tools for educational purposes.

Table 6.3 shows that there is no statistically significant difference in the extent of utilization of educational technology systems among faculty respondents when grouped according to their highest educational attainment. Faculty members holding a Bachelor's degree (Group A), a Master's degree (Group B), and a Doctorate degree (Group C) show relatively close mean scores across various Learning Management Systems (LMS)—Canvas, Google Classroom, LMS365, Moodle, and NEO.

For example, Canvas LMS scores are 3.56, 3.62, and 3.31 for Groups A, B, and C, respectively, and Google Classroom scores range from 3.54 to 4.00. Although there are minor variations in means, such as Master's degree holders scoring slightly higher in Google Classroom usage (4.00), all computed F-values remain below the critical value of 3.124 at the 0.05 level of significance. This results in accepting the null hypothesis, indicating no significant difference in LMS usage based on educational attainment.

Table 6.3

Significant Difference in the Extent of Utilization of the Educational Technology System of the Faculty-Respondents When Grouped According to their Highest Educational Attainment

Indicators	**Mean**	**Group**			**Computed F – Value**	**Decision**	**Remarks**
	SD	**A**	**B**	**C**			
Canvas LMS	Mean	3.56	3.62	3.31	0.452	Accept Ho	Not Significant
	SD	0.99	1.11	1.30			
Google Classroom LMS	Mean	3.54	4.00	3.67	1.337	Accept Ho	Not Significant
	SD	1.20	0.93	1.19			

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LMS365 (Microsoft)	Mean	3.49	3.24	3.32	0.267	Accept Ho	Not Significant
	SD	1.07	1.48	1.37			
Moodle LMS	Mean	2.73	2.65	3.07	0.513	Accept Ho	Not Significant
	SD	1.28	1.51	1.42			
NEO LMS	Mean	2.26	1.79	1.73	1.524	Accept Ho	Not Significant
	SD	1.23	1.23	0.99			
Utilization of the Educational Technology System of the Faculty-Respondents	Mean	3.12	3.06	3.02	0.067	Accept Ho	Not Significant
	SD	0.90	0.83	0.94			
F-Critical/Tabular Value at 0.05 Level of Significance (α) =3.124							

Legend:

A → *Bachelor's Degree Holder*

B → *Master's Degree Holder*

C → *Doctorate Degree Holder*

The overall utilization means for all educational attainment groups also show minimal differences, with averages between 3.02 and 3.12. These findings imply that the level of formal education attained by faculty members does not significantly impact their use of educational technology systems, suggesting a broadly similar approach to technology adoption across educational levels. This consistency may be due to institutional policies and training that promote equitable usage of educational technology, regardless of academic qualifications.

Table 6.4 shows that there is no significant difference in the extent of utilization of educational technology systems among faculty respondents when grouped according to their years of experience using these systems.

The respondents were classified into three groups: those with 5 years or less of experience (Group A), 6 to 10 years of experience (Group B), and more than 10 years of experience (Group C). The results indicate that the mean scores for the utilization of various learning management systems (LMS)—Canvas, Google Classroom, LMS365, Moodle, and NEO LMS—are closely aligned across all three groups. For example, the mean score for Canvas LMS ranges from 3.40 to 3.69, and Google Classroom LMS scores show minimal variation, with values between 3.71 and 3.77. These findings suggest that years of experience do not have a substantial impact on the extent to which faculty members utilize educational technology. Additionally, the computed F-values for all LMS systems are below the critical value of 3.124, indicating no statistical significance. The overall mean scores for educational technology utilization also show little variation, ranging from 2.99 to 3.17 across the groups. This lack of significant difference implies that

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whether faculty members have been using educational technology for a few years or over a decade, they tend to use these systems at similar levels. This may be due to consistent institutional policies, standardized training, or other factors that ensure uniformity in the use of technology across varying experience levels. Thus, it suggests that experience alone does not account for the variation in technology utilization among faculty members.

Table 6.4

Significant Difference in the Extent of Utilization of the Educational Technology System of the Faculty-Respondents When Grouped According to their Years of Using Educational Technology Systems

Indicators	**Mean**	**Group**			**Computed F – Value**	**Decision**	**Remarks**
	SD	**A**	**B**	**C**			
Canvas LMS	Mean	3.44	3.40	3.69	0.540	Accept Ho	Not Significant
	SD	1.00	1.00	1.27			
Google Classroom LMS	Mean	3.77	3.71	3.76	0.016	Accept Ho	Not Significant
	SD	1.01	0.95	1.31			
LMS365 (Microsoft)	Mean	3.36	3.37	3.34	0.002	Accept Ho	Not Significant
	SD	1.23	0.91	1.60			
Moodle LMS	Mean	2.60	2.55	3.09	1.223	Accept Ho	Not Significant
	SD	1.14	1.20	1.67			
NEO LMS	Mean	1.77	2.20	1.94	0.730	Accept Ho	Not Significant
	SD	0.92	1.22	1.38			
Utilization of the Educational Technology System of the Faculty-Respondents	Mean	2.99	3.04	3.17	0.288	Accept Ho	Not Significant
	SD	0.72	0.70	1.09			
F-Critical/Tabular Value at 0.05 Level of Significance (α) =3.124							

Legend:

A → *5 years and below*

B → *6 – 10*

C → *11 years and above*

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The results highlight the possibility that factors such as the availability of resources, institutional support, and training could be more influential in determining the extent to which faculty members use educational technology, rather than the number of years they have been using these systems.

Table 6.5 reveals that there is no significant difference in the extent of utilization of the educational technology system among student-respondents when grouped according to their age, except for LMS365 (Microsoft).

The respondents were categorized into three age groups: 25 years and below (Group A), 26 to 35 years (Group B), and 36 to 45 years (Group C). For most of the learning management systems (Canvas LMS, Google Classroom LMS, Moodle LMS, and NEO LMS), the computed F-values are lower than the critical value of 3.052, leading to the acceptance of the null hypothesis and indicating no significant difference in usage across the age groups. For instance, the mean scores for Canvas LMS and Google Classroom LMS remain relatively consistent across the age groups, suggesting similar utilization patterns regardless of age. However, in the case of LMS365, there is a significant difference, with Group C (36–45 years) showing a notably lower mean score of 2.27 compared to the other groups, as indicated by the computed F-value of 5.495, which exceeds the critical value. This suggests that older students in this age group use LMS365 less frequently than their younger counterparts.

The overall mean scores for educational technology utilization also do not vary greatly between the groups, further reinforcing that age does not have a substantial impact on the overall use of educational technology among students, except in the case of LMS365.

Table 6.5

Significant Difference in the Extent of Utilization of the Educational Technology System of the Student-Respondents When Grouped According to their Age

Indicators	**Mean**	**Group**			**Computed F – Value**	**Decision**	**Remarks**
	SD	**A**	**B**	**C**			
Canvas LMS	Mean	3.45	3.44	3.38	0.011	Accept Ho	Not Significant
	SD	1.12	1.12	1.56			
Google Classroom LMS	Mean	4.25	4.36	4.43	0.321	Accept Ho	Not Significant
	SD	0.67	0.71	0.61			
LMS365 (Microsoft)	Mean	3.65	3.44	2.27	5.495	Reject Ho	Significant
	SD	1.01	0.72	1.28			
Moodle LMS	Mean	2.65	2.46	2.03	0.627	Accept Ho	Not Significant
	SD	1.39	1.35	1.24			

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NEO LMS	Mean	2.19	2.11	1.97	0.101	Accept Ho	Not Significant
	SD	1.29	1.12	1.38			
Utilization of the Educational Technology System of the Student-Respondents	Mean	3.24	3.16	2.82	0.792	Accept Ho	Not Significant
	SD	0.81	0.65	1.09			
F-Critical/Tabular Value at 0.05 Level of Significance (α) =3.052							

Legend:

A → 25 years and below
B → 26 – 35
C → 36 – 45

The findings highlight that other factor, such as familiarity with specific platforms, course requirements, or technological support, might better explain the differences in technology use, particularly for certain LMS tools.

Table 6.6

Significant Difference in the Extent of Utilization of the Educational Technology System of the Student-Respondents When Grouped According to their Sex

Indicators	**Mean**	**Group**		**Computed F-Value**	**Decision**	**Remarks**
	SD	**A**	**B**			
Canvas LMS	Mean	3.52	3.31	1.330	Accept Ho	Not Significant
	SD	1.14	1.11			
Google Classroom LMS	Mean	4.37	4.06	8.563	Reject Ho	Significant
	SD	0.61	0.73			
LMS365 (Microsoft)	Mean	3.71	3.35	4.644	Reject Ho	Significant
	SD	0.99	1.09			
Moodle LMS	Mean	2.62	2.62	0.0004	Accept Ho	Not Significant
	SD	1.39	1.37			
NEO LMS	Mean	2.19	2.16	0.014	Accept Ho	Not Significant
	SD	1.30	1.25			

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Utilization of the Educational Technology System of the Student-Respondents	Mean	3.28	3.10	1.876	Accept Ho	Not Significant
	SD	0.79	0.85			
F-Critical/Tabular Value at 0.05 Level of Significance (α) =3.899						

Legend:

A → *Female*
B → *Male*

Table 6.6 reveals that there are significant differences in the extent of utilization of certain educational technology systems among student-respondents when grouped according to their sex. For the majority of the systems, such as Canvas LMS, Moodle LMS, and NEO LMS, the computed F-values are below the critical value of 3.899, leading to the acceptance of the null hypothesis and indicating no significant difference between male and female respondents

Table 6.7

Significant Difference in the Extent of Utilization of the Educational Technology System of the Student-Respondents When Grouped According to their Highest Educational Attainment

Indicators	**Mean**	**Group**				**Computed F – Value**	**Decision**	**Remarks**
	SD	**A**	**B**	**C**	**D**			
Canvas LMS	Mean	3.22	3.07	3.33	3.60	1.272	Accept Ho	Not Significant
	SD	1.36	1.27	1.21	1.02			
Google Classroom LMS	Mean	3.94	4.11	4.27	4.32	1.440	Accept Ho	Not Significant
	SD	0.75	0.75	0.63	0.66			
LMS365 (Microsoft)	Mean	3.86	3.18	3.58	3.60	0.871	Accept Ho	Not Significant
	SD	1.03	1.06	1.02	1.04			
Moodle LMS	Mean	2.33	2.31	2.50	2.77	0.854	Accept Ho	Not Significant
	SD	1.55	1.22	1.39	1.38			
NEO LMS	Mean	2.19	2.18	2.06	2.25	0.226	Accept Ho	Not Significant
	SD	1.51	1.27	1.23	1.28			
Utilization of the Educational	Mean	3.11	2.97	3.15	3.31	0.896	Accept Ho	

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Technology System of the Student-Respondents	SD	0.97	0.72	0.81	0.80			Not Significant
F-Critical/Tabular Value at 0.05 Level of Significance (α) =2.661								

Legend:

A → *First Year*
B → *Second Year*
C → *Third Year*
D → *Fourth Year / Graduating*

Both sexes show similar levels of usage for these platforms, with mean scores closely aligned across groups. However, Google Classroom LMS and LMS365 (Microsoft) exhibit significant differences, with female respondents showing higher mean scores compared to their male counterparts. For Google Classroom LMS, the computed F-value of 8.563 is notably higher than the critical value, suggesting that female students utilize this platform more extensively. Similarly, LMS365 shows a significant difference with a computed F-value of 4.644, indicating that female students also use this platform more frequently.

Overall, while there is no significant difference in the utilization of most educational technologies, females appear to engage more with Google Classroom LMS and LMS365, which could be influenced by various factors such as personal preferences or the nature of tasks assigned in these platforms.

Table 6.7 indicates that there is no significant difference in the extent of utilization of educational technology systems among student-respondents when grouped according to their highest educational attainment. The computed F-values for all the platforms, including Canvas LMS, Google Classroom LMS, LMS365 (Microsoft), Moodle LMS, and NEO LMS, are lower than the critical value of 2.661, leading to the acceptance of the null hypothesis.

Despite slight variations in mean scores, such as the higher mean usage of Google Classroom LMS and LMS365 by upper-year students, these differences are not statistically significant. Therefore, educational attainment, as indicated by year level, does not appear to significantly influence the extent of utilization of these platforms, implying that other factors may be at play in determining how students engage with educational technology.

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Table 6.8

Significant Difference in the Extent of Utilization of the Educational Technology System of the Student-Respondents When Grouped According to their Years of Using Educational Technology Systems

Indicators	**Mean**	**Group**			**Computed F – Value**	**Decision**	**Remarks**
	SD	**A**	**B**	**C**			
Canvas LMS	Mean	3.44	3.48	3.39	0.035	Accept Ho	Not Significant
	SD	1.11	1.18	1.17			
Google Classroom LMS	Mean	4.25	4.25	4.35	0.162	Accept Ho	Not Significant
	SD	0.68	0.62	0.75			
LMS365 (Microsoft)	Mean	3.54	3.60	3.85	0.603	Accept Ho	Not Significant
	SD	1.03	1.09	0.93			
Moodle LMS	Mean	2.71	2.49	2.33	0.750	Accept Ho	Not Significant
	SD	1.41	1.33	1.37			
NEO LMS	Mean	2.22	2.21	1.81	0.681	Accept Ho	Not Significant
	SD	1.31	1.23	1.19			
Utilization of the Educational Technology System of the Student-Respondents	Mean	3.23	3.21	3.15	0.077	Accept Ho	Not Significant
	SD	0.86	0.75	0.65			
F-Critical/Tabular Value at 0.05 Level of Significance (α) =3.052							

Legend:

A → *5 years and below*

B → *6 – 10*

C → *11 years and above*

Table 6.8 reveals that there is no significant difference in the extent of utilization of educational technology systems among student-respondents when grouped according to their years of using educational technology. The computed F-values for all the platforms, including Canvas LMS, Google Classroom LMS, LMS365 (Microsoft), Moodle LMS, and NEO LMS, are all lower than the critical value of 3.052, leading to the acceptance of the null hypothesis. This means that the duration of experience with educational technology, whether 5 years and below, 6 to 10 years, or 11 years and above, does not significantly impact how students utilize these platforms. Although there are slight differences in mean scores for each platform,

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such as a marginal increase in Google Classroom LMS utilization among students with 11+ years of experience, these differences are not statistically significant. Therefore, the number of years a student has been using educational technology systems does not appear to significantly affect the extent to which they engage with these tools.

Question No. 7 What are the constraints encountered by the respondents in the use of Educational Technology Systems?

Table 7 presents a comprehensive comparison of the constraints encountered by faculty and tertiary students in using educational technology systems, highlighting the differences in their experiences.

Table 7

Encountered Constraints by the Respondents in the Use of Educational Technology Systems

Indicators	Faculty			Tertiary Student			Mean Difference
	WM	VI	R	WM	VI	R	
1. Inadequate availability of computers, internet connectivity, or other digital devices necessary for accessing and utilizing educational technology tools.	3.27	C	7.5	3.66	MC	4.5	0.39
2. Insufficient network bandwidth, outdated hardware, or unreliable internet connections that impede the seamless integration and use of educational technology tools.	3.40	MC	3	3.67	MC	2.5	0.27
3. Inadequate technical support and troubleshooting resources to assist faculty and students in resolving technical issues or challenges encountered while using educational technology tools.	3.27	C	7.5	3.66	MC	4.5	0.39
4. Resistance from faculty, staff, or students to adopt and integrate new educational technology tools into existing teaching and learning practices due to fear of the unknown, skepticism, or inertia.	3.17	C	10	3.36	C	10	0.19
5. Insufficient training and professional development opportunities for faculty and staff to develop the necessary skills and competencies required for effectively utilizing educational technology tools in teaching and learning.	3.28	C	6	3.57	MC	7	0.29
6. Limited financial resources allocated for procuring, implementing, and maintaining educational technology tools systems, including	3.41	MC	2	3.75	MC	1	0.34

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software licenses, subscription fees, and equipment upgrades.							
7. Difficulty in aligning educational technology tools with pedagogical goals and instructional strategies, leading to mismatches between technology use and desired learning outcomes.	3.25	C	9	3.58	MC	6	0.33
8. Concerns regarding data security, privacy, and compliance with regulatory requirements when using educational technology tools that collect, store, or transmit sensitive information about students and faculty.	3.36	C	5	3.52	MC	9	0.16
9. Disparities in digital literacy skills, internet access, and technological resources among students, leading to unequal opportunities and experiences in utilizing educational technology tools.	3.45	MC	1	3.67	MC	2.5	0.22
10. Challenges related to the compatibility and interoperability of educational technology tools with existing institutional systems, learning management systems, and other software applications used in tertiary education settings.	3.39	C	4	3.53	MC	8	0.14
Average Weighted Mean	**3.33**	**C**		**3.60**	**MC**		**0.27**

Legend:

4.20	-	*5.00*	→	*Highly Constraint (HC)*
3.40	-	*4.19*	→	*More Constraint (MC)*
2.60	-	*3.39*	→	*Constraint (C)*
1.80	-	*2.59*	→	*Low Constraint (LC)*
1.00	-	*1.79*	→	*Not a Constraint (NC)*
		WM	→	*Weighted Mean*
		VI	→	*Verbal Interpretation*
		R	→	*Rank*

Both groups face several challenges, with constraints predominantly falling within the "Constraint" (C) and "More Constraint" (MC) categories, indicating moderate to significant difficulties in utilizing educational technology tools. For faculty, the top constraints include "insufficient training and professional development" (3.28) and "inadequate technical support" (3.27), both of which were ranked similarly as "Constraint" (C). This suggests that faculty face challenges in effectively using technology due to a lack of adequate preparation and troubleshooting resources. On the other hand, tertiary students identified "inadequate availability of computers, internet connectivity, or other digital devices" (3.66) and "insufficient network bandwidth" (3.67) as their most significant obstacles, both ranked as "More Constraint" (MC), implying that students face more acute limitations in accessing and using the required technology. Despite these similarities, students generally reported slightly higher levels of constraint across the various indicators, with an average weighted mean of 3.60 compared to faculty's 3.33. This difference

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suggests that students are more likely to experience significant barriers in utilizing educational technology systems, particularly in terms of access to necessary digital resources and reliable internet connections.

Furthermore, the mean differences for individual constraints, such as 0.39 for the first constraint ("inadequate availability of computers and devices") and 0.27 for "insufficient network bandwidth," indicate that while faculty and students both face similar challenges, the intensity of these constraints is generally more pronounced for students.

Overall, the table reflects that both groups encounter significant obstacles that impede the smooth and effective integration of educational technology in teaching and learning. However, students appear to face a higher level of constraint, particularly when it comes to the availability of technological resources and network connectivity, suggesting that addressing these issues may require more focused efforts to support students in overcoming barriers to accessing educational technology tools.

Question No. 8 What are the suggested solutions to the constraints encountered by the respondents in using the educational technological systems?

Table 8 presents the suggested solutions to the problems encountered by faculty and tertiary students in using educational technology systems. Both faculty and students strongly recommended a range of measures, with the majority of the suggestions falling under the "Strongly Suggested" (STS) and "More Suggested" (MS) categories. The highest-ranked solutions for both groups include the allocation of resources to upgrade digital infrastructure (4.24 for faculty and 4.38 for students) and providing comprehensive technical support services (4.23 for faculty and 4.46 for students). These measures were strongly emphasized as essential to ensuring reliable access to educational technology and addressing immediate technical issues, reflecting the importance of improving infrastructure and support systems for the effective use of technology tools.

While the mean difference between the groups is generally small (ranging from 0.14 to 0.32), students consistently rated solutions slightly higher than faculty, indicating a stronger emphasis on the need for improvement in digital infrastructure and support services.

Furthermore, solutions related to ongoing professional development programs (4.20 for faculty and 4.44 for students) and allocating funds for educational technology tools (4.20 for faculty and 4.42 for students) also received significant support, suggesting that both groups recognize the necessity of investing in professional growth and technological resources. However, there were notable differences in the rank positions of some suggestions. For instance, faculty rated "To provide pedagogical training and support" (4.25) as the top priority, while students ranked it lower (4.39).

Overall, the table illustrates that both faculty and students emphasize the need for improved infrastructure, support, and professional development, with students generally placing slightly higher value on these solutions to ensure effective use of educational technology tools.

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The average weighted means of 4.19 for faculty and 4.42 for students highlight the strong consensus on the importance of these measures, with students reflecting a slightly greater urgency for addressing these challenges.

Table 8

Suggested Solutions to the Problems Encountered by the Respondents in Using the Educational Technological Systems

Indicators	Faculty			Tertiary Student			Mean Difference
	WM	VI	R	WM	VI	R	
1. To allocate resources to upgrade digital infrastructure, including network bandwidth, hardware, and internet connectivity, to ensure reliable access to educational technology tools.	4.24	STS	2	4.38	STS	9.5	0.14
2. To provide comprehensive technical support services and helpdesk assistance to address faculty and student needs promptly and effectively, including troubleshooting and training.	4.23	STS	3	4.46	STS	1	0.23
11. To Implement change management strategies to foster a culture of openness, collaboration, and innovation, encouraging faculty and students to embrace new educational technology tools and practices.	4.21	STS	4	4.40	STS	7	0.19
3. To offer ongoing professional development programs, workshops, and training sessions to equip faculty and staff with the necessary skills and competencies for effectively integrating and utilizing educational technology tools in teaching and learning.	4.20	STS	5.5	4.44	STS	3	0.24
4. To allocate funds strategically to prioritize investments in educational technology tools and resources, ensuring adequate funding for software licenses, subscriptions, equipment upgrades, and infrastructure maintenance	4.20	STS	5.5	4.42	STS	6	0.22
5. To provide pedagogical training and support to help faculty align educational technology tools with instructional goals, develop effective teaching strategies, and integrate technology-enhanced learning experiences into their courses.	4.25	STS	1	4.39	STS	8	0.14
6. To implement robust data security measures, encryption protocols, and privacy policies to	4.11	MS	10	4.43	STS	4.5	0.32

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safeguard sensitive information and ensure compliance with data protection regulations when using educational technology tools.							
7. To implement digital equity initiatives to address disparities in digital literacy skills and access to technology, providing support and resources to underserved student populations to ensure equitable opportunities for learning.	4.17	MS	8	4.43	STS	4.5	0.26
8. To advocate for interoperability standards and promote integration efforts to facilitate seamless compatibility between educational technology tools and existing institutional systems, reducing compatibility issues and enhancing usability.	4.15	MS	9	4.38	STS	9.5	0.23
12. To foster collaboration and community engagement among stakeholders, including faculty, staff, students, administrators, and technology vendors, to co-create solutions, share best practices, and drive continuous improvement in utilizing educational technology tools.	4.19	MS	7	4.45	STS	2	0.26
Average Weighted Mean	**4.19**	**MS**		**4.42**	**STS**		**0.23**

Legend:

4.20	- *5.00*	→	*Strongly Suggested (STS)*
3.40	- *4.19*	→	*More Suggested (MS)*
2.60	- *3.39*	→	*Suggested (S)*
1.80	- *2.59*	→	*Slightly Suggested (SLS)*
1.00	- *1.79*	→	*Not Suggested (NS)*
	WM	→	*Weighted Mean*
	VI	→	*Verbal Interpretation*
	R	→	*Rank*

Question No. 9 What faculty development program can be proposed in using and teaching with educational technological systems based on the result of the study?

The proposed Faculty Development Program is designed to address constraints in using and teaching with educational technology, as identified in the study. It focuses on improving access to digital infrastructure, providing comprehensive technical support, and equipping faculty with the skills needed for effective integration of technology into teaching. The program also emphasizes the importance of ongoing professional development, financial investment in technology, data security, and fostering digital equity. By incorporating workshops on pedagogical strategies, system integration, and collaboration, the program aims to enhance the overall use of educational technology, ensuring that both faculty and students can effectively engage with digital tools in a seamless and inclusive learning environment.

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The proposed faculty development program for using and teaching with educational technological systems encompasses various components aimed at enhancing the overall effectiveness of educational technology in academic environments. The program is designed to address different aspects of technology integration, ensuring that faculty and students can make the most of available resources and tools.

Firstly, the program aims to *Upgrade Digital Infrastructure* by improving access to reliable educational technology tools through upgraded infrastructure. This includes training on best practices for utilizing available resources effectively.

Secondly, *Provide Comprehensive Technical Support* is essential to ensure faculty and students receive prompt and effective assistance with technical issues. This involves establishing a helpdesk and conducting troubleshooting workshops.

Thirdly, *Strategic Management Planning* is crucial to foster a culture of openness, collaboration, and innovation. This encourages faculty and students to embrace new educational technology tools and practices. Conducting strategic management planning sessions helps keep everyone updated on new educational technology tools and practices.

The program also emphasizes *Professional Development Programs*, equipping faculty with the necessary skills and competencies for using educational technology. Regular workshops on different learning management systems (e.g., Canvas, Google Classroom) are a key component of this initiative.

Furthermore, *Allocate Resources for Technology Investments* ensures the necessary funding for educational technology tools, resources, and upgrades. Faculty workshops on budgeting for educational technology are part of this effort.

Pedagogical Training and Support are also vital, ensuring that faculty can align technology with instructional goals and develop effective strategies. Workshops on pedagogical strategies for online teaching are included in this training.

Data Security and Privacy Training ensure faculty understand data protection policies when using educational technology tools. Workshops on the secure use of digital platforms and protecting student data are provided.

The program aims to *Foster Digital Equity and Accessibility*, ensuring equitable access to technology and support for students facing technological challenges. Workshops on inclusive teaching practices using educational technology are part of this initiative.

Interoperability and System Integration Training ensure educational technology tools integrate seamlessly with existing institutional systems. Workshops on integrating learning management systems (LMS) with other institutional systems are conducted.

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Lastly, *Collaboration and Community Engagement* fosters collaboration among faculty, staff, and students in using educational technology effectively. Creating faculty communities of practice to share technology use ideas is encouraged.

To promote interactive learning and improve student engagement, the program includes workshops on gamification, interactive simulations, and using multimedia in teaching. Faculty will also receive training on creating engaging online content and utilizing interactive tools such as polls and quizzes.

The program further seeks to equip faculty with skills to design and implement effective blended learning environments through courses on blended learning models, flipped classroom techniques, and integrating online and offline activities. Best practices for blending synchronous and asynchronous learning will be shared.

To improve assessment techniques and feedback mechanisms in digital learning environments, the program offers training on using learning management systems (LMS) for assessments, online grading tools, and providing constructive feedback. Workshops on designing digital assessments that promote critical thinking and application of knowledge are also included. Fostering collaboration and teamwork using digital tools is another key component of the program. Faculty will receive training on collaborative platforms such as Microsoft Teams, Zoom, and collaborative document editing tools. Strategies for managing virtual teams and facilitating online group work will be discussed.

Lastly, the program aims to implement adaptive learning technologies to cater to diverse student needs. Faculty will be introduced to adaptive learning platforms that personalize the learning experience and trained on setting up and utilizing these systems in their courses.

By implementing this comprehensive faculty development program, institutions can ensure that faculty are well-equipped to integrate and utilize educational technologies effectively, particularly learning management systems. This will ultimately enhance the teaching and learning experience for both educators and students.

Summary

The summary of findings answers questions of the study specifically; the study seeks to answer the following questions:

1. **What is the demographic profile of faculty and student - respondents in terms of;**

1.1. Faculty

1.1.1. Age;

Largest age group was 46 and above, comprising 46.67% of respondents, indicating a significant proportion of experienced educators, while the 25 and below group is the smallest at 6.67%.

1.1.2. Sex

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In terms of sex, females slightly outnumber males, representing 52% of the respondents.

1.1.3. Highest Educational Attainment;

Regarding educational attainment, most faculty hold bachelor's or master's degrees (38.67%), followed by Doctorate holders at 22.67%.

1.1.4. Years of using Educational Technology Systems

In terms of years of using educational technology, 11 years and above is the most common duration (38.67%), with 6–10 years and 5 years or below making up 28% and 33.33%, respectively.

These findings reflect a diverse faculty profile with varying levels of experience and qualifications.

1.2. Students

1.2.1. Age;

Most of the student - respondents (91.52%) were aged 25 years and below, with minimal representation from older age groups, and none aged 46 and above.

1.2.2. Sex

Females dominate the distribution, constituting 64.85% of the respondents against 35.15% only for male students' respondents.

1.2.3. Highest Educational Attainment;

In terms of academic standing, fourth-year or graduating students represent the largest group (53.33%), followed by third-year students (32.12%), with first- and second-year students making up smaller portions.

1.2.4. Years of using Educational Technology Systems

Regarding experience with educational technology, most students (64.85%) have used such systems for 5 years or less, with fewer having 6–10 years (26.06%) or 11 years and above (9.09%) of experience.

These findings highlight a predominantly young, female student body with varying academic levels and limited experience in using educational technology systems.

2. What is the extent of the utilization of Educational Technology Systems of the faculty / tertiary students in terms of:

2.1. Canvas LMS;

The relatively close average weighted means between faculty (3.53) and students (3.45) demonstrate a shared recognition of Canvas LMS's value, but also underline the necessity for continuous enhancements and support to maximize the platform's potential. While Canvas LMS is effectively utilized by both faculty and students, there is room for improvement in areas such as accessibility and user feedback, which could further enhance the educational experience.

2.2. Google Classroom LMS;

The faculty utilize Google Classroom to a More Utilized (MU), with an average weighted mean of 3.75, whereas students utilize it to a highly utilized (HU), with an average weighted mean of 4.26. This suggests a higher engagement and satisfaction with Google Classroom among students compared to faculty.

2.3. LMS365 (Microsoft);

The utilization of Microsoft 365 LMS varies between faculty and tertiary students, with students generally rating their use slightly higher than faculty. The overall average weighted mean suggests that

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faculty utilize the system to an undecided extent (U), with a WM of 3.36, whereas students utilize it to a moderate extent (MU), with a WM of 3.58.

2.4. Moodle LMS; and

The utilization of Moodle LMS by both faculty and tertiary students is generally rated as Utilized (U), with average weighted means of 2.77 for faculty and 2.62 for students. This suggests a moderate level of engagement and mixed feelings about the effectiveness and usability of Moodle LMS.

2.5. NEO LMS.

The utilization of NEO LMS by both faculty and tertiary students is generally rated as low Utilized (LU), with average weighted means of 1.96 for faculty and 2.18 for students. This suggests limited engagement and utilization of NEO LMS among both groups.

3. What is the level of the tertiary students' learning performance in terms of:

3.1. Creativity;

Faculty Average Weighted Mean (AWM) is 3.90 (Good - G), ranked 4th, while students Average Weighted Mean (AWM) is 4.04 (G), also ranked 4th. The mean difference is 0.14, indicating similar perceptions of creativity between faculty and students.

3.2. Critical Thinking;

Faculty Average Weighted Mean (AWM) is 3.80 (G), ranked 5th, while students Average Weighted Mean (AWM) is 4.02 (G), also ranked 5th. The mean difference is 0.22, suggesting students rate their critical thinking skills slightly higher than faculty.

3.3. Collaboration;

Faculty Average Weighted Mean (AWM) is 3.99 (G), ranked 3rd, while students Average Weighted Mean (AWM) is 4.14 (G), also ranked 3rd. The mean difference is 0.15, showing close agreement on collaboration skills.

3.4. Communication; and

Faculty Average Weighted Mean (AWM) is 4.07 (G), ranked 2nd, while students Average Weighted Mean (AWM) is 4.16 (G), also ranked 2nd. The mean difference is 0.09, indicating very similar perceptions of communication skills.

3.5. Technology Literacy.

Faculty Average Weighted Mean (AWM) is 4.15 (G), ranked 1st, while students Average Weighted Mean (AWM) is 4.20 (Excellent - E), also ranked 1st. The mean difference is 0.05, showing very close agreement on technology literacy, with students rating it slightly higher.

4. Is there a significant relationship between the extent of the utilization of Educational Technology System and the level of the tertiary students' learning performance?

There is a significant relationship between the extent of the utilization of Educational Technology System and the level of the tertiary students' learning performance as assessed by the students and faculty with the computed t-value of -8.289 exceeds the critical value and t-value of -13.769 surpasses the critical t-value of ±1.975, leading to the rejection of the null hypothesis and confirming the significance of this relationship at the 0.05 level.

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5. Is there a significant difference between the assessment of the faculty and tertiary students in the use of Educational Technology Systems?

There is no significant difference between the assessment of the faculty and tertiary students in the use of Educational Technology Systems with the computed F-value of 1.588 falls below the critical value of ±3.881 at the 0.05 level of significance, leading to the acceptance of the null hypothesis.

6. Is there a significant difference in the extent of utilization of the Educational Technology System of the faculty and student - respondents when grouped according to their profile?

There is no significant difference on the assessment of the two groups of respondents in the extent of utilization of the Educational Technology System when grouped according to their profile.

6.1. The overall utilization mean score across age groups also shows minimal variation, with scores from 2.97 to 3.28 and an F-value of 0.494, leading to the acceptance of the null hypothesis across all categories. This suggests that age does not significantly affect how faculty members use educational technology systems, implying that usage patterns are consistent across different age groups.

6.2. The overall mean utilization of educational technology systems is also consistent between the two groups, with females at 3.17 and males at 2.97, accompanied by an F-value of 0.960, further supporting the conclusion of no significant difference based on sex.

6.3. The computed F-values remain below the critical value of 3.124 at the 0.05 level of significance. This results in accepting the null hypothesis, indicating no significant difference in LMS usage based on educational attainment. The overall utilization means for all educational attainment groups also show minimal differences, with averages between 3.02 and 3.12. These findings imply that the level of formal education attained by faculty members does not significantly impact their use of educational technology systems, suggesting a broadly similar approach to technology adoption across educational levels.

6.4. The computed F-values for all LMS systems are below the critical value of 3.124, indicating no statistical significance. The overall mean scores for educational technology utilization also show little variation, ranging from 2.99 to 3.17 across the groups.

The computed F-value of 5.495, which exceeds the critical value. This suggests that older students in this age group use LMS365 less frequently than their younger counterparts. The overall mean scores for educational technology utilization also do not vary greatly between the groups, further reinforcing that age does not have a

6.5. substantial impact on the overall use of educational technology among students, except in the case of LMS365.

6.6. The computed F-values are below the critical value of 3.899, leading to the acceptance of the null hypothesis and indicating no significant difference between male and female respondents.

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6.7. The computed F-values for all the platforms, including Canvas LMS, Google Classroom LMS, LMS365 (Microsoft), Moodle LMS, and NEO LMS, are lower than the critical value of 2.661, leading to the acceptance of the null hypothesis.

6.8. The computed F-values for all the platforms, including Canvas LMS, Google Classroom LMS, LMS365 (Microsoft), Moodle LMS, and NEO LMS, are all lower than the critical value of 3.052, leading to the acceptance of the null hypothesis

7. What are the constraints encountered by the respondents in the use of Educational Technology Systems?

Both groups encounter significant obstacles that impede the smooth and effective integration of educational technology in teaching and learning. However, students appear to face a higher level of constraint, particularly when it comes to the availability of technological resources and network connectivity, suggesting that addressing these issues may require more focused efforts to support students in overcoming barriers to accessing educational technology tools.

8. What are the suggested solutions to the constraints encountered by the respondents in using the educational technological systems?

Both faculty and students emphasize the need for improved infrastructure, support, and professional development, with students generally placing slightly higher value on these solutions to ensure effective use of educational technology tools

9. What faculty development program can be proposed in using and teaching with educational technological systems based on the result of the study?

The proposed Faculty Development Program focuses on improving access to digital infrastructure, providing comprehensive technical support, and equipping faculty with the skills needed for effective integration of technology into teaching. The program also emphasizes the importance of ongoing professional development, financial investment in technology, data security, and fostering digital equity. By incorporating workshops on pedagogical strategies, system integration, and collaboration, the program aims to enhance the overall use of educational technology, ensuring that both faculty and students can effectively engage with digital tools in a seamless and inclusive learning environment

CONCLUSIONS

In the light of the findings the following conclusions were drawn:

1. The study revealed a diverse profile of faculty and student respondents, with faculty predominantly belonging to older age groups and holding advanced degrees, while students are mostly young and have limited experience with educational technology systems.

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2. Both faculty and students actively utilized educational technology platforms such as Canvas and Google Classroom, though differences in utilization levels and satisfaction are evident.
3. A significant relationship existed between the extent of educational technology usage and students' learning performance, highlighting the critical role of digital tools in enhancing educational outcomes.
4. No significant differences were observed in the utilization of educational technology systems across profiles such as age, sex, or educational attainment, indicating consistent usage patterns among respondents.
5. Challenges, particularly in terms of resource availability and network connectivity, were more pronounced among students, necessitating targeted efforts to improve access and overcome barriers.
6. The proposed Faculty Development Program aims to address these challenges by improving digital infrastructure, providing technical support, and fostering professional growth among faculty.
7. By incorporating workshops on pedagogical strategies, system integration, and collaboration, the program seeks to enhance the effective use of educational technology, ensuring both faculty and students can engage with digital tools in a seamless and inclusive learning environment.

RECOMMENDATIONS

In light of the findings and conclusions, the following recommendations are made to enhance the utilization of educational technology:

1. For Institutional Administrators

1.1. *Enhance Digital Infrastructure*

- **What to do:** Upgrade internet connectivity and provide reliable network systems across campuses.
- **Who will do it:** Institutional administrators and IT departments.
- **How to do it:** Allocate sufficient funds, partner with technology providers, and ensure that bandwidth is adequate for simultaneous usage by faculty and students.

1.2. Modernize Technological Facilities

- **What to do:** Invest in state-of-the-art computer laboratories, learning hubs, and multimedia classrooms.
- **Who will do it:** Institutional administrators and finance committees.
- **How to do it:** Secure funding, prioritize technological upgrades, and equip facilities with advanced tools like interactive whiteboards and video conferencing equipment.

1.3. Implement Regular Assessments of Technological Needs

- **What to do:** Conduct periodic reviews and assessments of technological resources.
- **Who will do it:** Institutional administrators and IT departments.
- **How to do it:** Schedule regular assessments, identify gaps, and prioritize areas for improvement to ensure sustainability of the infrastructure.

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1.4. Focus on Cost Efficiency and Long-Term Savings

- **What to do:** Invest in technology that reduces long-term costs.
- **Who will do it:** Institutional administrators and finance committees.
- **How to do it:** Opt for digital textbooks and online resources, use virtual meetings to cut down on travel expenses, and seek grants aimed at enhancing digital infrastructure.

2. For Faculty Members

2.1. Engage in Comprehensive Training Programs

- **What to do:** Participate in workshops and seminars on integrating learning management systems.
- **Who will do it:** Faculty members.
- **How to do it:** Attend training sessions on platforms like Canvas, Google Classroom, and Microsoft 365 LMS, covering both basic and advanced functionalities.

2.2. Incorporate Interactive Teaching Strategies

- **What to do:** Design interactive and collaborative activities using LMS features.
- **Who will do it:** Faculty members.
- **How to do it:** Utilize virtual discussions, quizzes, and project-based tasks to enhance student engagement and performance.

2.3. Seek Feedback from Students

- **What to do:** Regularly gather input from students on the usability of technology in teaching.
- **Who will do it:** Faculty members.
- **How to do it:** Conduct surveys or feedback sessions to identify challenges and opportunities for improvement.

3. For Students

3.1. Maximize Opportunities for Training and Orientation

- **What to do:** Actively participate in training sessions on using LMS.
- **Who will do it:** Students.
- **How to do it:** Attend institutional training sessions, and use step-by-step guides or video tutorials to navigate these platforms confidently.

3.2. Promote Responsible Technology Use

- **What to do:** Educate students on ethical and responsible use of technology.
- **Who will do it:** Faculty members and administrators.
- **How to do it:** Provide guidelines on academic integrity, protecting personal information, and maintaining proper online etiquette.

3.3. Enhance Self-Learning through Technology

- **What to do:** Encourage self-directed learning using LMS tools.
- **Who will do it:** Students.

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- **How to do it:** Explore and use tools provided by LMS for independent study, and participate in supplementary online courses.

4. For IT and Technical Support Teams

4.1. Strengthen Technical Assistance Services

- **What to do:** Set up 24/7 help desks or on-call support teams.
- **Who will do it:** IT and technical support teams.
- **How to do it:** Provide timely assistance, develop user-friendly guides, and create FAQs to address common problems.

4.2. Develop System Usage Analytics

- **What to do:** Implement analytics tools to monitor LMS usage.
- **Who will do it:** IT and technical support teams.
- **How to do it:** Analyze usage patterns and develop targeted interventions to improve system engagement.

4.3. Regularly Update and Maintain Systems

- **What to do:** Schedule routine updates and maintenance of LMS platforms.
- **Who will do it:** IT and technical support teams.
- **How to do it:** Ensure compatibility with the latest educational applications and prevent disruptions.

5. For Policy Makers and Stakeholders in Education

5.1. Promote Digital Equity Initiatives

- **What to do:** Establish partnerships to provide access to technological devices and internet services.
- **Who will do it:** Policy makers and educational stakeholders.
- **How to do it:** Work with government agencies and private organizations to offer subsidized or free access to technology for underserved communities.

5.2. Develop Comprehensive Policies on Technology Use

- **What to do:** Formulate guidelines for integrating technology into the curriculum.
- **Who will do it:** Policy makers and educational administrators.
- **How to do it:** Create policies on data privacy, intellectual property rights, and academic usage.

5.3. Allocate Budget for Faculty Development

- **What to do:** Ensure budget allocation for professional development.
- **Who will do it:** Policy makers and institutional administrators.
- **How to do it:** Fund continuous training programs to keep educators up-to-date with technological trends.

6. For Future Researchers

6.1. Explore Long-Term Impacts

- **What to do:** Conduct longitudinal studies on the effects of educational technology.

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- **Who will do it:** Future researchers.
- **How to do it:** Examine learning outcomes, teaching methodologies, and institutional efficiency over time.

6.2. Investigate Emerging Platforms

- **What to do:** Analyze the effectiveness of new LMS platforms and digital tools.
- **Who will do it:** Future researchers.
- **How to do it:** Assess innovative solutions to teaching and learning challenges.

6.3. Address Context-Specific Challenges

- **What to do:** Study barriers faced by different demographic groups in utilizing educational technology.
- **Who will do it:** Future researchers.
- **How to do it:** Propose context-specific solutions tailored to the needs of diverse student populations.

By implementing these detailed recommendations, each stakeholder can contribute to the enhancement of educational technology utilization, fostering a more inclusive and effective learning environment that supports both faculty and students.

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