YANGON UNIVERSITY OF ECONOMICS
DEPARTMENT OF ECONOMICS
MASTER OF ECONOMICS

STUDENTS' PERCEPTION OF THE USE OF ICT IN LEARNING ACTIVITIES (CASE STUDY IN HPA-AN UNIVERSITY)

NAW YWA EH

SEPTEMBER, 2023

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A thesis submitted in partial fulfillment of the requirements for the Master of Economics (M.Econ) Degree

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This is to certify that this thesis entitled **"Students' Perception of the Use of ICT in Learning Activities (Case Study in Hpa-An University)"**, submitted as a partial fulfillment towards the requirements for the Degree of Master of Economics has been accepted by the Board of Examiners.

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ABSTRACT

This study assesses students' perceptions, attitudes, and levels of satisfaction regarding ICT usage in education at HPA-AN University. The analysis in the study was descriptive to find out challenges associated with using ICT tools in educational institutions with the intention of enhancing student engagement, comprehension, and performance through effective ICT integration. The findings indicate that students primarily use mobile phones for communication and learning but lack access to computer software and devices due to high costs, poor internet connectivity, electrical issues, and a lack of ICT training for half of the respondents. Additionally, students have a positive perception, attitude and satisfaction of ICT use in learning. The study suggests that HPA-AN University should ensure a consistent supply of electricity, provide adequate learning materials and advanced learning technology, collaborate with students to design ICT courses, integrate ICT tools and digital materials that align with learning goals, and offer professional development to enhance ICT skills. Allocating resources to upgrade technology and purchase educational software licenses for improved student engagement and comprehension is essential.

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LIST OF ABBREVIATIONS

ASEAN	Association of South-East Asian Nations
BE	Basic Education
CPD	Continuing Professional Development
ECs	Education Colleges
HE	Higher Education
ICT	Information and Communication Technology
IT	Information Technology
ITU	International Telecommunication Union
LAN	Local Area Networks
MOE	Ministry of Education
MSDP	Myanmar Sustainable Development Plan
NESP	National Education Strategic Plan
NGOs	Non-Governmental Organizations
PEU	Perceived Ease of Use
PLE	Personal Learning Environment
PTAs	Parent-Teacher Associations
PU	Perceived Usefulness
SDG	Sustainable Development Goal
TAM	Technology Acceptance Model
TEIs	Teacher Education Institutions
TVET	Technical and Vocational Education and Training
UDNR	University of National Race Development
UNESCO	United Nations Educational, Scientific and Cultural Organization
UOEs	Universities of Education
USA	United States of America
VSAT	Very Small Aperture Terminal
WAN	Wide Area Network

CHAPTER I
INTRODUCTION

1.1 Rationale of the Study

Recent advancements with communication and information technology, or ICT, have made it an essential part of our daily lives, radically altering the way we communicate, access information, and work together. ICT tools and resources have been widely incorporated into teaching and learning activities as technology advances, in recognition of its important impact on education.

ICT provides the ability to improve access to high-quality education and information, helping to reduce the digital divide. However, there are significant disparities in how ICT is now used in education throughout the Pacific and Asian countries. ICT has largely been included into official education across many countries, especially in wealthy urban regions. Neglected non-formal education programs and rural schools have widened the digital divide.

However, more than just accessibility and usefulness, ICT integration in educational contexts also largely relies on how teachers and students see its use. It is critical to comprehend their perspectives in order to deploy and implement ICT in the educational environment properly. Understanding their viewpoints will help us understand how ICT is regarded, welcomed, and employed in educational settings.

This study aims to investigate the perception, attitude, and satisfaction differences between urban and rural university students. Universities frequently use ICT for educational purposes in urban regions, but universities in rural areas are also attempting to adopt ICT for learning activities in an effort to keep up with and adapt to these developments. It focuses specifically on how ICT is used at HPA-AN University, which is situated in the Kayin State of Myanmar, in order to comprehend how students there view, perceive ICT-related learning activities, and perceive ICT-related learning activities. Finding out the difficulties associated with integrating ICT technologies into educational settings in order to improve student involvement, comprehension, and performance is one of the study's key goals. ICT tools and resources offer several

advantages, such as improved engagement, accessibility to a variety of information and educational resources, chances for individualized learning experiences, and the promotion of collaborative learning settings. Understanding how students view these benefits will help us develop more potent methods for utilizing the potential of ICT to enhance learning outcomes.

Prioritizing bridging gaps in two crucial areas is crucial for addressing the digital divides in education and managing technology's capacity to improve learning, lower learning poverty, and foster the development of skills. These areas are the digital infrastructure, which includes improving connectivity, providing necessary devices, and reliable software; and the human infrastructure, developing student skills, for utilizing and maintaining technological advancements at HPA-AN University.

1.2 Objective of the Study

The objectives of the study are as follows:

1. to assess students' perceptions, attitudes, and satisfaction levels regarding ICT use in learning activities at HPA-AN University.
2. to find out challenges related to the use of ICT tools in educational institutions for the purpose of enhancing student engagement, comprehension, and performance through effective ICT integration.

1.3 Method of Study

The analysis used in this study is descriptive. In order to accomplish the goals, both primary and secondary data are used. In order to use quantitative methodologies, a questionnaire survey was undertaken. For this study, primary data were collected from students through a simple random sampling method. The questionnaire contains multiple-choice questions, yes or no questions, and Likert scale analysis to assess students' perceptions, attitudes, and satisfaction levels regarding ICT use in learning activities at HPA-AN University.

Additionally, secondary data were gathered from various sources, including publications, reports, internet resources, libraries, online newspapers, journals, HPA-AN University's department of academic affairs, and the administrative department.

1.4 Scope and Limitations of the Study

This study only focuses on the perceived challenges of using ICT in learning activities that ICT brings to learning among young people, especially among students from HPA-AN University. The survey was conducted between June and August 2023. Out of 2811 students from HPA-AN University, 297 participants from 14 different majors completed the questionnaire, representing 10.57% of the student population.

1.5 Organization of the Study

This study consists of five chapters. The initial chapter presents the introduction, rationale, objectives, methodology, scope, and limitations. The second chapter is literature review. Chapter three focuses on overview of e-education in Myanmar. Chapter four examines survey analysis, and Chapter five concludes the conclusion with findings and suggestions.

CHAPTER II
LITERATURE REVIEW

2.1 Concepts of Students' Perceptions of ICT Use in Learning

The Technology Acceptance Model (TAM) is a widely accepted theoretical framework in the field of information systems and technology that aims to explain and predict how users, in this case, students, accept and adopt technology. It was created by Fred Davis in the late 1980s and has since been applied to comprehend and gauge users' adoption of numerous technologies, especially those utilized in education. It was created by Fred Davis in the late 1980s and has since been applied to comprehend and gauge users' adoption of numerous technologies, especially those utilized in education.

The foundation of TAM is the notion that perceived utility and usability are the two key factors influencing a person's propensity to use a technology.

1. **Perceived User-Friendliness**: This TAM feature focuses on the user's perception of how easy or convenient a particular technology is to use. It encompasses factors such as the system's user-friendliness, the clarity of instructions, and the simplicity of learning to operate the technology. In a classroom setting, if the technology is simple and not overly complicated, students are more likely to embrace and use it.
2. **Perceived Utility**: The idea that using technology will improve one's performance or make one's tasks easier is known as perceived utility. When it comes to education, students are more inclined to accept and use ICT if they believe it will improve their learning outcomes, comprehension, or overall educational experience. If students feel that using ICT would enhance their learning outcomes, comprehension, or overall educational experience, they are more likely to accept and use technology in the classroom.

According to TAM, these two elements have a direct impact on a person's intention to utilize technology. If a person thinks a technology is both valuable and simple to use, they are more likely to intend to use it. The real usage of the technology follows from this intention.

TAM has been extensively utilized to investigate how students see the use of ICT for education. To determine how students view educational technologies including learning management systems, e-learning platforms, and online resources, researchers have used TAM. Educators and institutions can choose wisely how to integrate and support technology to improve the learning experience by understanding how students perceive the usability and simplicity of these technologies.

Over time, TAM has also been expanded upon and altered to take into account new elements like social impact, facilitating circumstances, and behavioral intention. These changes, which include the UTAUT (Unified Theory of Acceptance and Use of Technology), and associated models, provide more thorough frameworks for comprehending the acceptance and adoption of technology.

In Western nations like the United States (Pew Research Center, 2010) and Spain (AIMC, 2013), young generations have widely embraced Information and Communication technology (ICTs), notably Internet and mobile technology, for social purposes. Social web services, often referred to as Web 2.0, play a crucial role in this acceptance. They have overcome technical and financial barriers, enabling the creation, sharing, and distribution of digital content across various devices, including smartphones, tablets, and video consoles.

As a result of the educational sector's experimentation with the use of ICTs in education in response to these socio-technical shifts (Lee, 2010), Platforms for online education and Web 2.0 services have seen a surge in acceptance. Several authors, including Romero-Fras and Arquero (2013), Ajjan & Hartshorne (2008), Mason (2006), and Selwyn (2007), have noted that these services successfully link individuals and resources, foster communication, encourage active participation, and facilitate critical analysis, among other benefits.

Learning Management solutions (LMS), which are technological solutions typically based on closed environments especially tailored for learning, have been subject to evaluation using the TAM. The PLE method, however, which was developed using 2.0 technologies that are intended for general use, marks a substantial departure because it is intended to support students in creating independent, long-lasting learning resources based on transparent interactions and individual needs. Technology acceptability in these kinds of open contexts has not been studied. This theoretical model is created to promote open digital environments and the adoption of the Learning

2.0 system. Understanding the factors that influence PLE acceptability is crucial in order to improve the design of these types of proposals.

Furthermore, student opinions about the course's features can impact the system's Perceived Usefulness (PU) as a whole (Lee, 2006). According to Martins and Kellermanns (2004), students are more likely to find the system helpful when they believe that its use will positively affect their performance in class. It follows that it is logical to believe that students' PU is favorably correlated with their understanding of the possibilities of e-learning technology. Selim's findings (2007) underscore the importance of strengthening interactive and collaborative elements in e-schooling as critical success points.

Teachers' and students' attitudes are crucial for the introduction and integration of instructional technology into a school curriculum to be successful (Selwyn, 1999; Woodrow, 1991). According to research, attitudes and receptivity to using computers in the classroom have a big impact on students' learning outcomes (Teo, 2008). In order to properly integrate computers into the teaching and learning process in schools, it is important to consider the views of students about technology. Students favored the application of ICT in the classroom, as found in a 2004 study by Dorup, who also noted their positive perceptions of the technology. Kennewell (2001), on the other hand, contended that a number of variables, including classroom management, classmates, teachers, resources, and more, might have an effect on students' positive attitudes. Contradictory findings have come from numerous research looking at students' attitudes toward ICT and their relationship to gender.

2.2 Information and Communication Technology

ICT combines communication technology (CT) and information technology (IT). CT focuses on user interactions, exchanges, and connections over networks while IT involves processing and packaging information. ICT refers to information collection, processing, and storage techniques that are carried out electronically. The environment that these entities operate in is also impacted, which has an effect on how well they run their activities.

The term "information technology" (IT), also known as "informatics," has two definitions: (1) it refers to the application of these technologies across all economic sectors, such as publishing, broadcasting, libraries, databanks, and other information service industries; and (2) it describes the use of these technologies in the IT-based

industries and a variety of information-related fields, such as computer hardware and software, communication networks and equipment, and IT-based industries. Information and communication technology (ICT) encompasses more than just coding, networking, and analysis. It includes the use of computers and related instruments to improve life in general and the quality of goods produced as well as worker productivity and global competitiveness. This technology makes communication and information management easier, highlighting the value of fully integrated computer-based communication systems.

Through the rapid and global transmission of information enabled by ICT, work processes and service delivery models may change. ICT also plays a vital role in advancing overall development and economic growth, facilitating the restructuring of organizations to embrace a community-centered approach. Information and communication technology adoption is accelerating and is helping all nations' economies grow. Thanks to the accessibility and wide-spread distribution of new knowledge through ICT, a conventional energy-based economy can transform into a knowledge-based economy (KBE). Thus, it characterizes an economy in which a sizeable portion of the population engages in knowledge-intensive and commercial activities. A nation's potential economic success can be predicted by how information and communication technology develops. By increasing ICT human resources in underdeveloped nations to levels comparable to those in developed ones, the gaps that lead to digital inequities between and within countries can be closed.

The objectives for employing ICT encompass:

- Encouraging the development of an efficient organizational structure.
- Making access to governmental and regulatory services easier.
- Increasing public accessibility to information resources.
- Increasing the organization's openness and responsibility toward its direct and indirect stakeholders.

ICT has developed into a vital component of the nation's progress in the social and economic domains. Without a doubt, ICT is positioned to be extremely important in helping Myanmar achieve its sociological, economic, and political objectives. Particularly, information and communication technologies will act as the main entry point for economic development. According to general agreement, developing countries must use ICTs to advance quickly and compete on the international stage.

ICT development is being actively pursued by several developing nations. A important knowledge source is information and communication technology. Effective knowledge and skill sharing will depend on how ICTs, like the Internet, are used. The state must continue to be in charge of the economic aim, which includes efforts to reshape the national economy. Without a greater level of public education, this objective cannot be met. Information and communication technologies, which are an essential part of the transfer of technologies and the diffusion of knowledge, will significantly aid in the growth of the country's general educational level. Information and communication technology is not only crucial for the growth of numerous social and economic sectors, but it has also grown to be a sizable economic sector in and of itself. Furthermore, it is expanding quickly. ICT has developed into a significant job-creation sector for nations that concentrate on it particularly. The Internet, in particular, is to blame for how widespread ICT impact is in the modern period across all dimensions of human existence. The gap between industrialized and developing countries may be made worse by the presence of ICTs. On the other hand, purposeful efforts to advance ICT can enable poor countries to close the gap with their developed counterparts and make substantial advancements.

The creation of a national ICT master plan is something that national leaders have highlighted time and time again. Taking into account their respective strengths and shortcomings, the ASEAN countries have created ICT master plans that prioritize execution. The ASEAN countries' current state of ICT and its intended future paths have been thoroughly analyzed to create the ICT Master Plan. Action plans and mission strategies are described.

2.3 Integration of ICT in Education

The use of digital tools, including hardware, software, and the internet, to enhance teaching and learning procedures is known as Educational Technology (EdTech). It encompasses a wide range of technologies and strategies aimed at improving educational outcomes. Here are some key aspects of the assimilation of ICT in education:

1. **Enhanced Learning Resources**: ICT makes it possible to access a variety of digital learning tools, including e-books, interactive simulations, educational apps, online databases, and multimedia content. By boosting interaction and engagement, these tools can enhance learning.

2. **Online Learning Platforms**: Online platforms and learning management systems (LMS) give teachers the ability to design, organize, and distribute lessons, homework assignments, tests, and evaluations. The interaction and cooperation between students and teachers is also made possible through these platforms.
3. **Blended Learning**: Online learning is combined with conventional classroom training in blended learning. It enables a more individualized and flexible learning experience by allowing students to access content online.
4. **Distance Learning**: Distance learning is made possible by ICT, which is beneficial for students who are unable to attend traditional classroom settings. Online degree programs, webinars, and virtual classrooms are all part of it.
5. **Interactive Learning**: Opportunities for interactive and practical learning can be provided via ICT. The learning process is facilitated for pupils by simulations, virtual laboratories, and educational games.
6. **Data Analysis and Personalization**: Monitoring student development and adjusting instruction to meet individual requirements are made easier by educational data analytics. Based on how well students perform, adaptive learning systems change the pace and material.
7. **Collaboration and Communication**: Regardless of distance, online resources, video conferencing, and social media promote communication and collaboration between students and teachers.
8. **Global Learning**: ICT links pupils to international viewpoints and resources. They can communicate with classmates and teachers from different countries, fostering global cooperation and understanding.
9. **Accessibility**: Through the use of assistive technologies like speech recognition software, screen readers, and other assistive technologies, ICT can improve accessibility to education for people with impairments.
10. **Professional Development**: ICT is a tool that educators can employ for their own professional growth. Teachers can improve their abilities and stay current with educational methods by using online courses and tools.
11. **Administrative Efficiency**: ICT simplifies administrative chores at educational institutions, from handling scheduling and enrollment to handling tests and grading.

12. **Research and Innovation**: ICT fosters educational innovation and research by enabling scholars to gather and evaluate data, work with peers, and share their findings.

Infrastructure constraints, the digital divide, teacher preparation, worries about data security and privacy, and the requirement for efficient content and resource curation are just a few of the difficulties connected with integrating ICT in education.

In order to improve learning results, effective ICT integration necessitates a methodical strategy that blends technology and pedagogy. To make sure that ICT is accomplishing its intended aims, it is crucial to take into account the unique needs and circumstances of both learners and educators. Additionally, the influence of ICT on education must be continually assessed.

The advent of ICT has transformed various aspects of our lives and significantly impacted several industries, such as business, law, banking, engineering, and architecture. Over the past two to three decades, ICT has had a profound influence. These domains currently operate considerably differently from how they did in the past as a result of the technology's rapid development. Education seems to have seen much less change and influence than other industries (Pramanik, 2011). Education, which also aids a nation in becoming technologically imaginative and on the proper route for economic success, is one of the most significant expenditures in a country's human capital. Because of the rapid growth and development of ICT, technology is increasingly widely used in education (Gulbahar and Guven, 2008).

Education systems around the world are under increasing pressure to incorporate new ICT technologies into their curricula in order to provide students with the knowledge and skills they will need in the 21st century (Hue and Ab Jalil, 2013). Many academics have underlined the significance of using them to improve the standard of instruction and learning. Governments and educational institutions have acknowledged the use of information and communications technology as a major issue for improving the efficiency of teaching and learning during the past few decades (Plump et al., 2009). Using ICT in the classroom has positive benefits on students' motivation, active learning, supply of effective resources, and information access, according to a review of the data by Sahin-Kizil (2011). Wang and Woo (2007) also looked at the enormous potential of technology to increase student engagement, connect students to a range of information sources, promote collaborative learning, and offer

teachers more time for facilitation in the classroom. Thus, integrating ICT into teaching and learning is a major concern for many educators.

Computer, communication, and other multimedia instrument improvements provide a multitude of sensory inputs. It is therefore said that I see, I remember, I do, and I understand. Through the use of animations, simulations, and software programs that teach a range of disciplines, learning is made for students more direct, applicable, and pleasurable. Learners' self-engaged learning is thought to be the basis of effective education.

The use of information and communication technologies in teaching and learning is a burgeoning field of research. ICT integration is required, according to various academic publications, to assist students' learning (Cartwright and Hammond, 2003; Herzig, 2004; Lim and Chin, 2004; Lim et al., 2003).

ICT integration in education is not a brand-new concept. It may be as old as other technologies like radios and televisions, according to Wang and Woo (2007). Thoughts on ICT integration have become more prevalent among educators as a result of the rapid progress of new technologies like web technology. By offering curricular support in challenging subject areas, information and communication technology integration can help instructors and students increase and enhance the standards of education (Gulbahar and Guven, 2008).

Integration connotes a state of completion or wholeness in which each essential element of a system is harmoniously combined to create a cohesive whole (Earle, 2002). It's crucial to remember that ICT integration in education doesn't just mean giving pupils a collection of websites or CD-ROM programs. According to Earle (2002), to define an effectively executed ICT-integrated lesson, ICT must be combined with other crucial educational components including content and pedagogy.

ICT integration, however, is a challenging task (Bhasin, 2012). This implies that its integration into the teaching-learning process is difficult. According to research by Bingimlas (2009), despite teachers' eagerness to integrate ICT into their instruction, they ran into a number of obstacles. The main challenges were a lack of funding, a lack of skill, and a lack of confidence. Competence, accessibility, and confidence are key elements for technology inclusion in schools, as has been noted. Access to ICT tools for teaching, such as hardware and software, as well as thorough professional development, enough time, and technical assistance are necessities. Effective instruction cannot be provided by relying solely on one factor. The prospect of great

ICT integration in teaching and learning possibilities is increased by the availability of all components, nevertheless (Ibid).

ICT has the potential to improve student learning outcomes and effectiveness if it is implemented appropriately, according to most educators (Wang, 2001). When used properly, including with the right sources, training methods, and support systems, ICT can enhance teaching and learning (Hue and Ab Jalil, 2013). The main factor affecting how well students learn is the pedagogical framework for effective use of ICT, not the availability of technology. Instead of the computer fitting the curriculum, this should be the other way around (Earle, 2002). Thus, a successful ICT integration should highlight educational design while defending the usage of the technology. Many authors have planned to include ICT into teaching and the educational process. (Bhasin, 2012) developed a cycle model to provide answers to the questions "who," "why," and "how" in the integration process.

The question of the integration process' objective is essential since teachers should be trying to boost students' academic performance by fusing the appropriate pedagogical techniques with ICT tools and applications to speed up topic acquisition. Recognizing the characteristics of the students who will make up the target group for the integration process is essential. In addition, the response to the question "How" is essential in developing and putting into practice a learning environment that is suitable for the objective and the characteristics of the target group.

A systematic methodology for ICT integration was also established by (Wang and Woo, 2007). Because the components are arranged in an orderly manner and follow a logical flow, it is systematic. A problem statement, which outlines the main concerns or difficulties to be addressed in a topic, is where a systematic model begins. The targeted learning outcomes for the topic are outlined in the learning objectives. Teacher-designers must thoroughly compare each potential learning technology in order to address the issue and meet the learning objectives. The technologies in this model could be software like multimedia courseware, online resources, communication tools like voice chat, text-based forums, or video conferencing, mind tools like concept mapping and multimedia authoring tools, or any other potential ICT tools. Technology should not be employed only because it is readily available or because it has already been proven to be successful in some circumstances. To facilitate the procedure and improve learning, it should be used. The teacher-designers must now choose how to successfully and meaningfully integrate the chosen technology into the topic learning after

establishing what technology is required and why. Details on ICT integration should be provided separately for each lesson as well as for the overall topic because a topic typically consists of numerous lessons. The pupils' mastery of the subject will be evaluated at the conclusion of the topic.

A strategy is never effective until it is put into action and shown to be accurate. Teacher-designers frequently encounter numerous limitations and restrictions during the planning process, which limits their options and approaches. The teacher-designers must reflect on their learning experiences related to the ICT integration after implementing the lessons. Reflections may center on whether the technology is acceptable, its advantages and disadvantages, and potential advancements. The teacher-designers can also offer further recommendations about how other teachers might use the lessons for various target students in various contexts. Alternative technology, teaching strategies, assessment techniques, and ways to enhance ICT integration are a few examples of these ideas.

The Ethiopian government has taken bold and aggressive actions on a number of fronts in the development of ICT at the federal and regional levels in recognition of the crucial role that ICT plays in sustainable development, democratization, and good government. According to the government's explanation for the effort, installing plasma display panels—satellite receiving devices—in every secondary-level classroom is crucial since information and communication technology is essential in today's globalized society (FDRE, 2004). The program's educational justification is that it guarantees that all students, regardless of geography, have access to model teachers, may watch laboratory demonstrations, are taught difficult ideas in a straightforward way, and receive simultaneous education. Although the government plan at the time was commendable, ICT is always evolving drastically. Therefore, it is crucial to evaluate how teachers perceive the use of ICT in the courses they teach in order to develop a systematic ICT integration plan.

2.3.1 The Role of ICT in Higher Education for the 21st Century

For higher education in the twenty-first century, information and communication technology (ICT) plays a crucial and transformational role. With new opportunities, efficiency, and capacities it has completely changed how education is given and received. Here are some key aspects of the role of ICT in higher education in the 21st century:

1. **Access to Knowledge**: ICT has widened access to knowledge. Educators, researchers, and online courses from all around the world are all available to students. It has also lowered entry barriers for students from all backgrounds, democratizing education.
2. **Online Learning and Distance Education**: Universities are now able to provide online courses and remote learning programs because to online platforms and e-learning tools. Without physically being present on campus, students can complete their degrees or take individual courses.
3. **Blended Learning**: Blended learning, which blends conventional face-to-face instruction with online components, is supported by ICT. Flexibility and a customized learning experience are provided by this method.
4. **Personalized Learning**: Utilizing ICT, adaptive learning systems personalize instruction for each student. These methods adapt the pace and subject matter of the curriculum to match particular requirements by examining data on student performance.
5. **Collaborative Learning**: ICT makes it easier for students to collaborate with one another and with teachers. Online debates, team projects, and collaborative technologies encourage participation and communication.
6. **Interactive Resources**: Students' comprehension and engagement are increased by the dynamic and immersive learning environments created by digital simulations, virtual labs, and educational games.
7. **Access to Experts**: Through virtual conferences, webinars, and online mentorship, ICT enables students to interact with professionals and instructors from around the globe.
8. **Research and Innovation**: Universities use ICT for research, data analysis, and interdisciplinary collaboration. Research capacities are changing as a result of big data analytics and high-performance computers.
9. **Administrative Efficiency**: ICT is useful for administrative tasks in educational institutions such enrollment, scheduling, evaluation, grading, and financial administration. This boosts operational effectiveness.
10. **Global Perspective**: ICT encourages a global viewpoint in higher education. Students have the opportunity to take part in international partnerships and exchange programs, as well as develop a deeper awareness of world problems.

11. **Professional Development**: ICT is used by teachers for professional growth. For the purpose of improving their teaching abilities, they use online courses, webinars, and digital materials.
12. **Accessibility and Inclusion**: ICT offers accessible features for students with disabilities, which helps to create a welcoming learning environment. It makes certain that a variety of students have access to educational materials.
13. **Lifelong Learning**: ICT encourages lifelong learning, enabling people to keep up-to-date with their skills and knowledge throughout their careers.
14. **Data-Driven Decision-Making**: Educational institutions employ data analytics to evaluate student performance, monitor development, and make educated choices regarding the curriculum and instruction.
15. **Emerging Technologies**: New ways of learning and experiencing knowledge are made possible by the incorporation of developing technologies like virtual reality (VR), artificial intelligence (AI), and augmented reality (AR) into education.

In the twenty-first century, ICT plays a dynamic and ever-changing role in higher education. It offers students greater flexibility and access to knowledge while giving educators and institutions the tools they need to design interesting and effective learning experiences. In order to fully utilize ICT for education, it is still important to address issues like the digital divide, data protection, and quality assurance.

Information and communication technology (ICT) has had a significant impact on a wide range of industries over the past two or three decades, including medicine, tourism, banking, business, law, and engineering. The way these fields function now is very different from how they functioned in the past. However, compared to other fields, education appears to have had a startling lack of effect and to have seen much less development. Soloway and Prior, 1996; Collis, 2002, among others, are only two authors who have made attempts to investigate this lack of activity and influence.

The widespread use of ICT in education across all sectors has been hindered by a number of problems. These have included things like a lack of finance to support the acquisition of the technology, a lack of training among experienced teaching practitioners, and a lack of motivation and need among teachers to utilize ICT as teaching aids (Starr, 2001). But recently, elements have developed that have bolstered and encouraged efforts to integrate ICTs into learning environments like schools. These have included the increasing need to investigate program delivery efficiencies, the

opportunities for flexible delivery provided by ICTs (e.g., Oliver & Short, 1997), the capability of technology to support customized educational programs to meet the needs of individual learners (e.g., Kennedy & McNaught, 1997), and the expanding use of the Internet and WWW as tools for information access and communication (e.g., Oliver & Towers, 1999).

The use of ICTs in education is being strongly influenced by these and other 21st-century elements, and current trends indicate that these opportunities and affordances will soon lead to significant changes in how education is organized and delivered. to investigate the possible changes in education that ICT will bring about as it operates as a potent force to alter many of the educational methods to which we have been accustomed. This will focus on the effects that information and communication technologies, both established and new, are likely to have on learning, as well as when, when, and how learning happens.

Modern ICTs are capable of offering significant support for all of these requirements, and there are now numerous great examples of world-class settings for competency- and performance-based courses that wisely utilize these technologies' affordances (e.g., Oliver, 2000). With the growth and widespread availability of modern ICTs, many limitations and impediments of the past have been removed. Teachers who wanted to embrace such curricula in the past had to contend with limitations in their tools and resources. Furthermore, these learning methods will keep progressing thanks to new technologies. The capacity to support these high-quality learning environments will increase as students and teachers have access to wider bandwidths, more direct modes of communication, and more sharable resources.

The ways in which ICTs are influencing so many aspects of modern life and work is one more way that rising ICTs are changing the subject matter of educational curriculum. Education institutions now have a responsibility to ensure that graduates have the necessary levels of information literacy, which is defined as "the ability to recognize and problem and then to locate, find, and assess appropriate data to be able to make use of it or resolve a problem arising from it" (McCausland, Wache & Berk, 1999, p. 2). The movement to support such developments results from institutional efforts to make sure that graduates display not only skills and knowledge in their subject areas but also general characteristics and generic talents. Historically, generic skills have included talents like the capacity for formal reasoning, problem-solving, effective communication, the capacity for outcome negotiation, the capacity for time

management, project management, as well as collaboration and teamwork skills. Information literacy has recently been added to the list of generic skills due to the increased usage of ICTs as tools in daily life, and it is extremely likely that this list of abilities will continue to grow in the future as technology advances and new applications are made.

Technology has an impact on and supports the knowledge that is taught in colleges and universities, as well as changes in the method that students learn. Moving away from teacher-centered forms of delivery and toward student-centered ones is a common trend in the transition from content-centered curriculum to competency-based curricula. Contemporary learning environments today allow students to take ownership of their own learning through technology-facilitated ways. The use of transmissive learning methods by pupils has historically been highly comfortable for them. The curriculum's content is presented to students by others since this is how they have been trained. Numerous teaching and learning practices used by both teachers and students are changing and will probably continue to change as ICT becomes a more common educational tool.

2.3.2 Challenges to Integration of ICT into Higher Education in Developing Countries

The integration of Information and Communication Technology (ICT) into higher education in developing countries faces several common challenges, which include:

1. **Infrastructure and Connectivity**: In many developing countries, there is a lack of reliable ICT infrastructure, including broadband internet access. Poor connectivity can hinder access to online resources and e-learning platforms.
2. **Digital Divide**: Developing countries often have significant disparities in ICT access. Students from urban areas and wealthier backgrounds tend to have better access to devices and the internet, exacerbating educational inequalities.
3. **Lack of ICT Literacy**: Both students and educators may lack basic ICT literacy skills necessary to effectively use technology for teaching and learning. Training and capacity-building programs are crucial.
4. **Cost and Funding**: Acquiring and maintaining ICT equipment and infrastructure can be expensive. Developing countries may struggle to secure the necessary funds for these initiatives.

5. **Content and Resources**: High-quality digital materials and information that are appropriate for the local curriculum and context can be difficult to produce or find. ICT integration's effectiveness may be constrained by a lack of locally relevant content.
6. **Pedagogical Shift**: A change in teaching strategies and faculty development may be necessary to implement effective pedagogical approaches that maximize the use of ICT. A roadblock can be resistance to such reforms.
7. **Regulatory and Policy Challenges**: The implementation of ICT in higher education may be hindered by governmental restrictions and policies. To encourage technological integration, clear and encouraging policies are required.
8. **Security and Privacy**: Ensuring the security of data, protecting students' privacy, and safeguarding against cyber threats are critical concerns when integrating ICT into education.
9. **Electricity Supply**: In some regions, access to a stable and uninterrupted electricity supply remains a challenge. This is a fundamental requirement for ICT use.
10. **Faculty Development**: Training and preparing educators to effectively integrate ICT into their teaching is often overlooked. Faculty members need support to develop digital literacy and pedagogical skills.
11. **Language and Localization**: Adapting digital content and platforms to the local language and culture is essential for effective ICT integration and engagement.
12. **Sustainability**: Maintaining and updating ICT infrastructure and resources over the long term is a sustainability challenge, especially in resource-constrained environments.
13. **Access to Devices**: Many students in developing countries do not have access to personal computing devices, such as laptops or tablets. This can make it challenging to implement e-learning and digital resources effectively.
14. **Assessment and Evaluation**: Developing appropriate methods for assessing and evaluating the impact of ICT integration in education can be complex.
15. **Capacity Building**: Developing local expertise in technology integration and support is crucial. This includes training IT staff and educators.

16. **Cultural and Societal Factors**: Cultural attitudes toward education and technology can affect how ICT is received in a given society.

Managing these challenges requires a comprehensive approach involving government support, international cooperation, public-private partnerships, and investments in infrastructure, training, and content development. It's essential to ensure that ICT integration is done in a way that is inclusive, sustainable, and beneficial for all students in developing countries.

2.4 E-education in ICT

E-Education in ICT likely refers to education or learning related to Information and Communication Technology (ICT) that is conducted electronically or through digital means, typically using the internet and digital platforms. E-Education is a term used to describe educational practices facilitated by electronic technology, and in this context, it specifically focuses on ICT as the subject of study or the medium through which education is delivered.

2.4.1 e-Learning

e-Learning, which commonly encompasses media like CD-ROMs, the Internet, wireless, and mobile learning, has evolved over time. Some iterations even include knowledge management as a form of e-learning. The evolution of the correct terminology took time. The term "internet-based education" was first used in 1995, followed by "web-based learning," "online learning," and finally "e-learning," using the "e-" prefix that became popular during the Internet boom. The addition of the “cyber” prefix catalyzed the industry, attracting substantial investment from venture capitalists who were drawn to any industry associated with this buzzword. e-Learning represents an electronic facet of instructional delivery, often seen in formats like online learning or distributed learning, where mediums like email, related videos, or digital formats are utilized.

Web-based learning, computer-based learning, virtual classrooms, and digital collaboration are only a few examples of the many applications and procedures that make up e-Learning. It involves distributing content over a variety of electronic channels, including the Internet, intranets, extranets, satellite broadcasts, videos, interactive television, and CD-ROMs. However, other businesses only see it as a way to spread knowledge and talents across a network. Whether learning is formal or

informal, e-Learning involves the transmission of content through various electronic media, including the Internet, networks, or stand-alone PCs. This is referring to the sharing of knowledge and skills across networks. E-learning, in its simplest form, is the process of learning through the use of electronic tools and procedures. Virtual classrooms, computer-based learning, online collaboration, and web-based learning are all included in these programs and procedures. Online, on intranets/extranets, on audio- or videotapes, on satellite TV, and on CD-ROMs are some of the delivery methods for content.

e-Learning encompasses any form of learning that utilizes a network for connection, interaction, or facilitation. This network can be the Internet, a school or college LAN (Local Area Network), or even a corporate WAN (Wide Area Network). Learning can occur individually or as part of a class. Online classes can either meet synchronously (simultaneously) or asynchronously (at different times), or even a combination of the two. In essence, e-learning is a process of learning that employs ICT tools to design, deliver, interact, support, and extend learning, along with other forms of electronic media.

2.4.2 Characteristic of e-Learning

The e-learning context operates in real time, harnessing technology to its fullest potential. Since both content and expert guidance need to be readily available, collaboration is employed to tap into the explicit and tacit knowledge of colleagues, experts, and peer professionals. The essence of e-learning's mission is to amalgamate resources from both within and outside institutions.

The power of online e-learning lies in its ability to offer increasingly personalized services and an individualized approach to learners. Each learner should have the capability to choose activities from a personalized list of learning opportunities that align with their background, current job, and profession. This approach ensures that the learning experience is tailored to the learner's specific needs at that particular moment.

Finally, e-learning offers educational content from various sources, granting learners the flexibility to select their preferred format or learning approach. The comprehensive nature of e-learning implies that learners can actively construct their own learning experiences without being solely dependent on guidance from teachers.

2.5 Incorporating ICT into the South Korean Educational Framework

In terms of connectivity and ICT penetration, nearly all classrooms are equipped with computers and other ICT tools. These classrooms exhibit a high student/computer ratio and enjoy a substantial level of Internet access in all schools. South Korean schools, for instance, boast global Internet connectivity. Concerning ICT policy, education ministers in these countries have crafted national ICT policies for the education sector, along with well-structured master plans for policy implementation. These plans are accompanied by sufficient budgets to ensure effectiveness. In relation to the integration of ICTs into teaching and learning, all these countries have revised their curricula to ensure seamless integration of ICTs on a national scale. Furthermore, the delivery of education is progressively shifting online, with e-learning being significantly facilitated by widespread Internet access and connectivity.

Professional development is a significant component of the ICT program in developed countries. These countries offer incentives for regular training activities aimed at in-service and pre-service teachers, administrators, principals, and educators. Similar to e-learning, teacher training is rapidly delivered over the Internet. However, it extends beyond basic computer literacy training. The goal is to facilitate the seamless integration of ICT into the curriculum and the teaching of various subjects. These courses also enhance teacher skills in managing online classrooms, developing websites, participating in School Net initiatives, engaging in professional electronic discussions, attending tele-meetings, and collaborating through tele-collaboration. The primary objective of teacher training is to establish norms, standards, and guidelines for both new and experienced educators, supporting the effective integration of ICT into the curriculum. Moreover, these countries are significantly advanced in terms of assessment, monitoring, and the development of indicators to gauge the impact of ICT utilization in education.

The ICT for Education website encompasses 17 countries in the region that have embarked on integrating ICT into education. Notably, in Australia, ICT has achieved full integration into primary school education, covering subjects like English, Mathematics, Science, Arts, Health, Physical Education, Languages, and Society and Environment. At the secondary school level, ICT is taught both as a standalone subject and is integrated into various subjects. Teacher training is an ongoing process, and each teacher is equipped with a notebook to facilitate ease of use. Various government budgets have been allocated to diverse projects, such as providing computers to remote

areas, enhancing the accessibility of e-learning in secondary schools, awarding scholarships to ICT-enabled public schools, and offering free or affordable access to the Internet, video conferencing, and satellite television.

In South Korea, as of April 2001, all schools have been granted access to the Internet, with free Internet availability until 2005. Additionally, student-computer ratio is notably favorable, with an average of 10 students per computer in elementary schools, 7 students per computer in middle schools, and 5 students per computer in high schools. All classrooms are fully equipped, a majority of them featuring multimedia capabilities. ICT is seamlessly integrated into the curriculum, with around 10-20% utilization of ICT in each subject, aimed at enhancing higher-order thinking skills. Teacher training is a continuous and regular endeavor, involving an annual training rate of 33% of teachers who receive a certificate of ICT literacy.

2.6 Review on Previous Studies

Khin Hnin Thu (2010) conducted a study on the use of Information and Communication Technology in Basic Education in Yangon City. The study employed a descriptive method, and secondary data were collected from the Myanmar Ministry of Education. This study aims to investigate Information and Communication Technology activities and analyze data on the use of computers in basic education schools affiliated with the Department of Basic Education (DBE (3)), Ministry of Education. She also noted that human resources have become a critical factor in any economic initiative. Education tends to increase income and improve people's quality of life. Given that ICTs are essential for economic development, multimedia classrooms have been progressively established to enhance the teaching of ICTs in basic education schools.

Collins and Halverson (2010) examined how the digital revolution has impacted American education and how technology has changed it. The authors made the case that the arrival of the digital age has the ability to upend long-held beliefs about how to educate people and produce brand-new learning opportunities. This book offered a thorough examination of how technological advancements are altering how kids learn, teachers transfer knowledge, and schools operate. It explores the advantages and problems that can result from incorporating technology into the educational system and provides helpful advice for thriving in this unfamiliar environment. The writers also looked at how technology might be used to increase equity and access to education.

They emphasized the potential of digital tools to close the achievement gap and give every student the same possibilities.

Thura (2015) conducted a study on the implementation of E-Learning in Myanmar. The master plan for ICT and e-learning in Myanmar is examined in this study. This study's aim is to investigate the function of infrastructure for information technology (IT) and information and communication technology (ICT), particularly in Myanmar's educational system. The way we approach different facets of school and daily life is changing as a result of technological breakthroughs. The study's objectives are to explain Myanmar's e-learning system and to identify the advantages and disadvantages of Myanmar's ICT infrastructure. In order to highlight the government's efforts and involvement in expanding the education sector, notably in education, e-learning technologies were also looked into.

Ahmed Suleiman and Ali Dashti (2018) examined student satisfaction and the factors influencing the adoption of mobile learning among both public and private university students in the learning process using the idea of constructive mastery. During the second semester of 2015–2016, 1012 undergraduate students were included in the study. They were chosen at random from three famous Kuwaiti universities. The study's findings supported the notion that Kuwaiti students are more likely than students from other nations to use their mobile phones for academic purposes, especially women who found it less difficult to utilize their phones for this purpose. The findings of the study are in favor of enhancing graduate students' exposure to modern information. The study's findings suggested that college students in both public and private institutions felt at ease using their cellphones for academic purposes. pupils who used mobile learning also showed more satisfaction than pupils who did not.

Abdullah, M. S., and Toycan, M. (2018) conducted an analysis of factors influencing the successful adoption of E-Learning services from the perspectives of education providers and students in private universities in Northern Iraq. The findings of the study were presented in the Eurasia Journal of Mathematics, Science, and Technology Education. They conducted study to determine what elements resulted in the successful adoption of e-learning services at private institutions in northern Iraq. The implementation of e-learning in the setting of private universities in northern Iraq is difficult but also has potential, according to this study, which offers vital new information. Researchers, educators, and lawmakers who seek to enhance e-learning practices in those kinds of environments may find this study to be a beneficial resource.

Phyo Wai Min (2022) examined a study on the role of ICT human resource development (HRD) for E-Government initiatives in Myanmar. This study's main goal was to examine how ICT HRD contributed to Myanmar's adoption of e-government programs. The study's secondary goals were assessing the significance of ICT HRD for E-Government, figuring out how ICT HRD and E-Government implementation are currently going in Myanmar, and monitoring the development of ICT HRD for E-Government there. The descriptive method was utilized in the study to collect and analyze data. For the survey analysis, both primary and secondary data were gathered. An online survey form was used to gather the main data, and 158 respondents from 14 union ministries and organizations were chosen at random. Between December 2020 and January 2021, the poll was taken. On the other hand, secondary data was gathered from a variety of sources, including UN E-Government Survey Reports, websites, books, and unpublished dissertations, and it covered the years 2000 through 2020. Based on the data that was studied, it was found that although Myanmar's ICT infrastructures and online services had improved noticeably, the state of ICT HRD in the nation's E-Government projects had not changed significantly.

CHAPTER III
OVERVIEW OF E-EDUCATION IN MYANMAR

3.1 Education System in Myanmar

Through the implementation of official, non-formal, and informal educational initiatives, attempts have been made in Myanmar to ensure that every person can complete at least a primary education. The formal education is obtained from public schools, colleges, and universities. The basic education and higher education sectors make up the two primary components of Myanmar's structured educational system.

3.1.1 Higher Education in Myanmar

Most of Myanmar's institutes of higher learning are under the direction of the Ministry of Education (MOE). The Department of Higher Education is divided into two parts, one of which serves Lower Myanmar and the other Upper Myanmar, and is under the supervision of the Ministry of Education. By putting short- and long-term education development goals into action, the Ministry of Education enhances the standard, accessibility, and diversity of higher education. Because it sees higher education as a way to equip people with the knowledge they need to make informed decisions and take advantage of economic opportunities within Myanmar, the government is hoping that its investments in education will pay off for the country's citizens.

The country of Myanmar has 163 universities. Every university in the state is supported by the state's higher education budget for a fiscal year. Funding for higher education increased 107% between fiscal years 2012 and 2013. The 97 institutions that are not under the control of the Ministry of Education are handled by the other 12 ministries, leaving 66 institutions under its jurisdiction. The 12 other ministries include those for co-ops, the Union Civil Service Board, religious affairs, border affairs, science and technology, defense, culture, environmental preservation and forestry, agriculture and irrigation, livestock breeding and fishing, environmental conservation, health, and transportation. Universities with a variety of subject specializations include those in

medicine, technology, agriculture, education, and economics. Universities are under the control of the relevant ministry. (The Ministry of Education, 2021-2030)

For students who are unable to enroll in a traditional university, the Ministry of Education offers two distance learning institutions. There are now two universities offering distance learning: one in upper Myanmar, Mandalay, and another in lower Myanmar's Yangon. The universities here provide 19 different academic fields. A few of the subjects that have lately been added under the education development goals are English, creative writing, public policy, and Myanmar studies. From traditional colleges to remote learning institutions, students can transfer credits in both directions. Modern technology is used by distant learning universities to support learning. Lessons for remote education can be sent to centers with the best locations for students utilizing the Satellite Data Broadcasting System.

The National Center for Human Resource Development was founded by the Ministry of Education to give students more flexible options for higher education. To suit the needs of the students, the Center develops professional, technological, and vocational courses. Human resource offices adjust to meet local needs, such as teaching foreign languages to the tourism sector. Centers for human resources offer certificates, degrees, undergraduate, postgraduate, and degree-level coursework. The human resource centers are designed to offer students a parallel educational system that enables them to seek higher education and career-related skills. Students have the freedom to finish their degrees in their own time and at their own pace.

The Comprehensive Education Sector Review (CESR), a project of the Conference on Development Policy Options, was established in Nay Pyi Taw in February 2012 with the goal of focusing on education reform. The CESR's recommendations highlight how crucial education reform is to Myanmar's economic growth. To guarantee the advancement of educational development, the CESR conducts three phases.

A conference on pragmatic education reform was held in Nay Pyi Taw on October 7, 2013, to examine the laws, rules, visions, and strategies for bringing about a pragmatic education reform on a national scale. For the drafting of a draft of the National Education Policy and Law, the forum assigned 19 tasks. The education reform's methods and processes are overseen by the Education Promotion Implementation Committee. The Education Promotion Implementation Committee is presided over by the Union Minister of the Ministry of Technology and Science. The

committee has a working group made up of education-related ministries and non-governmental groups that holds meetings and offers a forum for the general public to express their thoughts and ideas on educational reform. The working group hosts conferences and workshops and welcomes emails and letters regarding public sentiment toward the reforming of education. The National Education Law draft was delivered to the Union Government in May 2014.

An evidence-based National Education Strategic Plan (NESP) for 2016–2021 has been developed by the MOE after a successful 3.5-year Comprehensive Education Sector Review (CESR).

Myanmar's NESP goal is to improve teaching and learning, vocational education and training, research, and innovation in order to significantly raise student achievement levels across all educational settings.

For sector-wide changes that will significantly increase students' access to high-quality instruction at all levels of the national education system, the NESP offers a "roadmap." With the help of the NESP, adults, youth, and students in Myanmar will be given the knowledge and abilities necessary for success in the twenty-first century. The education system will make certain that all citizens: meet minimum national learning standards; develop critical and creative thinking skills; develop leadership qualities that enable them to assist others in their communities; and comprehend, respect, and uphold the rights and obligations of all citizens.

The Ministry of Education of Myanmar (MOE) would work to support the autonomy of higher education through such means as: Autonomy, which would enable universities to effectively manage their academic activities, For all groups in Myanmar society to have equal access to and achievement in higher education, inclusivity is a fundamental prerequisite. empowerment for change, which refers to each university's capacity to reinvent itself as a cutting-edge organization. Future empowerment through curricular and pedagogical practice improvements with the aim of better preparing the young people of Myanmar who will be in charge of establishing a more democratic society and developing a more prosperous economy. (The Ministry of Education, 2021-2030)

3.2 Information Technology into Education in Myanmar

Since its widespread adoption in the country's educational system in 1992, information technology has witnessed tremendous expansion, leading to significant changes in educational policy. The National Education Plan allows students to receive credit for both in-class and independent learning, which is a significant challenge for the educational system. The use of information technology in teaching approaches changes the roles played by both students and teachers.

Information technology helps students' capacity to communicate in English using information systems as well as their acquisition of fundamental computer skills. The use of information technology in learning improves learning strategies.

3.3 Initiating e-Education in Myanmar

On January 1st, 2001, the government introduced e-learning in Myanmar in an effort to encourage educational possibilities that cross time and space boundaries. Regardless of age, gender, experience level, or educational background, the country's residents now have more learning options because to the use of information and communication technologies. With the help of this program, Myanmar can develop into a learning society that can satisfy the demands of the information era.

Highly competent human resource development initiatives must be energetically and comprehensively implemented in order to construct a peaceful, modern, and developed nation. Maintaining the success of human resource development is also crucial. Myanmar's society must promote an educational culture that persistently pursues learning in order to accomplish this. The contemporary period is a knowledge-based era that necessitates ongoing efforts to address its problems. Regardless of age, experience level, qualifications, or geographic location, every individual should have access to education.

E-learning totally gives people the chance to pursue education via ICT by overcoming time limits. Currently, e-learning is acknowledged as the norm in worldwide education.

The creation of this network represents the sector's entry into its most unique, significant, and promising future as well as its integration with the e-learning infrastructure. The utilization of this network, which has ushered in a new era for the education sector, is thought to accelerate the advancement of the educational system. This change should also be seen as the construction of a suitable environment for

teaching and learning. One of the projects included in the Special Four-Year Plan for the Advancement of National Education is the Electronic Data Broadcasting System.

To accomplish the goals of NESP (2021-2030) and to aid in the implementation of Myanmar's Economic Recovery and Reform Plan, an e-education strategy is necessary. The plan supports a 10-year vision for the development of E-education for all in Myanmar, which will provide high-quality instruction at all levels using blended learning models that are appropriate for a range of learner situations.

This vision will be achieved through the following commitments:

- Digital technologies that create an ICT infrastructure linking educational institutions across national and international borders.
- Effective use of educational technology in creating lessons that support student-centered educational strategies.
- Widely accessible, pertinent digital content that supports course curriculum and lifetime learning.
- Educators are equipped with the digital skills necessary to offer, facilitate, and participate in high-quality blended learning. (The Ministry of Education, 2021-2030).

3.3.1 Seven Strategic objectives for the Strategy of Digital Education

Seven strategic objectives make up the e-education strategy for the educational field. The approach is based on a thorough analysis of Myanmar's e-education activities from the previous five years and lessons learned from instances of best practices used internationally in digital education.

1. ICT infrastructure is expanded to offer better connectivity both domestically and abroad.
2. ICT-based systems are created to assist the education sector, allowing for increased planning and decision-making efficiency in the provision of high-quality educational services.
3. The development of student-centered forms of educational engagement makes use of digital technology.
4. The production and distribution of top-notch digital multimedia material for the education sector.

5. The development of educators' digital skills to facilitate online instruction at educational institutions.
6. Students' digital skills are improved so they can participate in technology-enhanced learning effectively.
7. A powerful enabling environment is created to aid in the creation and adoption of e-education (The Ministry of Education, 2021-2030).

Developing young people's technological literacy and using technology to accelerate learning are essential goals of education in Myanmar. In line with this, over 19 000 schools now have multimedia classrooms that include cutting edge teaching tools like televisions, video cassette players, audio cassettes, overhead and multimedia projectors, listening centers with headphones, interactive language laboratories to advance language teaching and learning, and computer-assisted classrooms for instruction supported by computers.

Additionally, more than a thousand schools now have access to computer training tools that will help children in basic education become proficient with computers. Electronic Devices for Multimedia Instructional Aids have been introduced into Myanmar's Basic Education Schools. These multimedia classrooms can be divided into configurations that are multi-media, 3-Platform, 2-Platform, and 1-Platform, each of which has installed electronic devices.

- Classrooms that use many media platforms, including audio, video, computers, and projected media (using projectors), conform to a thorough guideline. The 3-Platform standard combines the audio-platform (which makes use of cassette tapes with headphones and integrates language lab installations), the audiovisual-platform (which uses video cassettes and video compact disks), and the computer-platform (which introduces computer-assisted instruction and computer-based learning skills).
- Both audio-platform and audiovisual-platform components must be present for the 2-Platform standard.
- The Audio-platform is the only technology used by the 1-Platform standard. (The Ministry of Education, 2021-2030).

3.4 Implementation of the Strategy of E-Education

The e-education strategy lays out a significant objective for Myanmar. While many of these digital initiatives are new and draw on the expanding potential of digital technology to contribute to the transformation of education institutions, based on the Education 4.0 agenda, some of them were started and advanced significantly under NESP (2016-2021). This new agenda acknowledges how a wide range of digital technologies can support more individualized learning experiences, expand remote learning opportunities, and provide education tools that can assist quick and accurate evaluation and learning.

The ICT Master Plan will concentrate on creating implementation plans. The coordination of the ICT Master Plan with other sectors and assistance for the growth of capacity for decentralized decision-making will complicate matters. This will guarantee that the plans take into account both local and national priorities for education and that they produce cutting-edge e-educational solutions appropriate for various situations. The entire society of Myanmar can thus benefit from the transformation of e-education depending on their own demands.

The draft of the Economic Growth Agenda, or EGA (2030), was created after a thorough examination of the MSDP (2018-2030), the National Education Law of 2014, the Science and Technology Innovation Law of 2018, the National Export Strategy of 2020–2025, the National Export Strategy of 2016–2021, the Mid-term Review Report of 2019, and numerous other documents, reports, and studies.

The durability and equity of the global education institutions have been put to the test by the COVID-19 problem. Governments and organizations had to devise new plans to fill the learning gaps as schools closed. Using remote and mixed learning approaches to maintain some continuity of education amid school closures and better prepare education systems for the future, countries have reacted in novel ways.

Myanmar's National Education Law (2014) aims to create a learning environment that meets international standards by utilizing ICT. This objective and Myanmar's attainment of Strategy 4.1 of its Sustainable Development Plan "To improve equitable access to high quality lifelong educational opportunities" are both supported by blended learning.

The fourth Sustainable Development Goal (Target 4.a) calls for "to construct and improve education facilities for child, impairments, and gender diverse learners and provide safe, non-violent, inclusive, and effective learning environments for all."

Myanmar can better fulfill this goal through the adoption of a blended learning strategy. The objective of blended learning for everyone is for teachers to be digitally literate and capable of using educational technologies to facilitate blended learning delivery to students across all learning settings. This applies to instructors at all levels in BE, TVET, and HE. To offer the entire curriculum at all levels, teachers must be prepared with the abilities they need to support both online and in-person instruction (The Ministry of Education, 2021-2030).

3.5 Creation of the ICT Framework that Supports e-Education

In order to enhance the quality of higher education programs through ICT, the subsequent resources have been set up to facilitate e-education.

1. Classrooms, multimedia lecture halls, and computer training centers are examples of facilities.
2. The creation of a vast educational network comprised of 619 learning centers and an electronic data broadcasting system.
3. Setting up video conferencing using wireless links in five separate places.
4. The implementation of a VSAT system for the Ministry of Education's intranet and expansion, together with a fiber optic network system linking various departments and schools of higher learning.
5. The Department of Higher Education (Lower Myanmar) will incorporate a Last Mile Radio Link to enhance its current VSAT connection.
6. The Department of Education Planning and Training has implemented the iPSTAR system at 20 colleges of education.
7. Provision of 100 high schools with Internet connectivity.
8. Establishing a Local Area Network for universities, degree-granting institutions, and the DHE (Lower Myanmar).
9. Establishing a computer department in colleges and universities (e-Education in Myanmar, 2020).

3.5.1 Creation of Facilities Based on ICT

The government has given ICT integration in education at all levels significant assistance. The Ministry of Education has established multimedia classrooms and language laboratories in primary educational institutions through collaborations with the commercial sector and local communities. These schools have access to specially

created software that was created by Basic Education departments, other educational departments, and partnerships with the private sector.

The two universities that offer distance learning make use of e-Education learning centers so that students can see lectures that are aired live from the studio of the Yangon University of Distance Learning. Students enrolled in remote education have the opportunity to interact with their professors thanks to this method. Three studios have also been established for the production and distribution of educational materials: (i) the Myanmar Education Research Department's video studio; (ii) the Globe Caster Studio of YUDE; and (iii) the Yangon University of Distance Education's audio studio.

3.5.2 Development of Human Resources and the Efficacy of E-learning

Any industry's progress depends heavily on the growth of its human resources. In order to shape Myanmar's future development, it is crucial to encourage the expansion of ICT-related human resources. In 1973, Myanmar started teaching computer science, not long after its first mainframe computer (ICL 1902S) was set up at the University Computer Center (UCC). At first, the only options were postgraduate programs with a small enrollment cap, like a Master's degree in computer science and a diploma in computer studies (D.C.Sc). The UCC was then reorganized and changed into the Institute of Computer Science and Technology (ICST) in 1985.

A significant advance occurred in 1986 with the launch of two undergraduate programs, including the Bachelor of Computer Science (B.C.Sc). Postgraduate degrees such the Master of Computer Science (M.C.Sc.) and Master of Computer Technology (M.C.Tech.) were pursued by those who qualified. In order to accommodate students from many fields, including physics, mathematics, chemistry, business, and economics, who completed the requirements for enrollment in postgraduate courses, the Master of Information Science (M.I.Sc) program was developed in 1993. In January 1997, ICST was transferred from the Ministry of Education after the Ministry of Science and Technology was founded in October 1996. In 1996, the institution underwent a name change to become the University of Computer Studies, Yangon. The University of Computer Studies in Mandalay, located in the upper Myanmar region, was established the following year.

These two universities began offering undergraduate diploma programs in 1998 under the names Dip C.S. and Dip C.M. There are currently 26 computer studies

universities in Myanmar as of 2007, which has greatly boosted the number of computer graduates. The number of students with IT credentials is currently estimated to be around 3000 per year. Additional 50,000 graduates from both public colleges and commercial computer centers supplement this. The following table contains more details.

Table (3.1) ICT Professionals as of 2018

Course	Public	Private	Total
Diploma	21.400(43%)	10,500 (21%)	31,900 (64%)
Bachelor	15,500 (31%)	-	15,500 (31%)
Master	2,000(4%)	-	2,000 (4%)
Doctoral	600(1%)	-	600 (1%)
Total	39,500	10,500	50,000
Total Percentage	79%	21%	100%

Source: MOE and MST

The introduction of Myanmar's market-oriented economic structure has resulted in the emergence of numerous private businesses and educational institutions that specialize in computer training. Currently, there are over 90 computer schools, 70 of which are in Yangon. In this area, well-known private computer training centers include MCC, ACE Data System, and KMD Computer. In addition to official institutions, Myanmar Computer Federation (MCF), working with several foreign organizations, facilitates vocational training. The MCPA certification program has been successfully implemented, and since 2002, a cross-certification campaign has been initiated in collaboration with the Japanese Information Examination Center.

The goal of ICT integration in education is to improve educational accessibility while also enhancing the quality of teaching and learning. Both teachers and students have access to a variety of up-to-date knowledge and information via the Internet, which goes beyond traditional resources like libraries to include repositories like museums, research centers, and governmental institutions.

An abundance of multimedia learning resources has evolved, engrossing students and encouraging an inquiry-based, experiential learning-based learning process. With the help of tools like email, video conferencing, message boards, and online forums, students may connect with one another, their teachers, and other experts, considerably expanding the learning environment.

In addition, the thoughtful integration of ICT into the learning environment fosters critical, integrative, and context-based instruction. This strategy fosters information literacy, or the ability to locate, evaluate, and effectively use information. Additionally, it promotes cross-curricular learning and gives students the tools they need to apply abstract ideas learned in the classroom to solve problems in the real world. Furthermore, ICT-enabled educational models like online learning and remote learning support ongoing teacher development and continuous student advancement. These developments improve the overall effectiveness of educational services provided by educational institutions and governing bodies at the federal, state, provincial, and local levels.

3.5.3 Higher Education Level in Myanmar

The broad adoption of computer literacy among the majority of pupils in Myanmar, a country with a population of 55 million, is essential for the growth of its human resource base. The University of Computer Studies (Yangon) and the recently established University of Computer Studies (Mandalay) (UCSM) offer a variety of academic offerings, including computer science degrees, Master's degree programs, pre and post-graduate diplomas, and doctorate programs, as shown in Table (3.2), in addition to the development of fundamental computer education in the nation.

Table (3.2) The Number of ICT Human Resources Trained from Government Sectors

No.	Degree	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	Total
1	Graduates	-	2,349	430	2,368	-	-	5,147
2	Master	162	61	-	106	46	-	375
3	Post-Diploma	142	-	-	26	-	-	168
4	Pre-Diploma	-	-	-	-	-	-	-
5	Ph.D	42	-	-	34	13	-	89
Total		346	2410	430	2,534	59	-	5,779

Source: Statistical Year Book, Myanmar, 2022.

Table (3.2) indicates that in the 2020-2021 academic year, the COVID-19 pandemic prevented the country from offering any programs, leading to the absence of students in attendance and a lack of graduate students for that academic year.

The University of Computer Studies (Yangon) and the University of Computer Studies (Mandalay) currently offer pre-graduate diploma programs that allow people who have completed their Basic Educational High School education to enter more advanced levels of computer education. There are efforts being made to increase the accessibility of these programs throughout all of Myanmar's divisions and regions.

As of the most recent information update in May 2019, there were around 160 colleges, universities, and degree-granting institutions within the Ministry of Education. A four-year education promotion program was launched in the year 2000. These educational institutions all now have computer training facilities, electronic resource centers, and learning centers for information technology as part of the program. Pentium Computers and Printers are provided to these facilities by the Ministry of Education in accordance with the requirements of the Education Promotion Programme. Every student is required to complete a 30-hour IT literacy course.

The Ministry of Education is involved in the broadcasting of interactive teaching and learning programs in partnership with the Ministry of Information. The Data Broadcasting System for Distance Education is used to assist these programs. Within universities, colleges, institutes, and colleges, learning centers have been established. Students can use the Internet to access live classes, recorded lectures, PowerPoint presentations, and written materials from various learning centers through the Data Broadcasting System.

The Ministry of Education actively participates in broadcasting interactive teaching and learning projects in collaboration with the Ministry of Information. The use of the Data Broadcasting System, which was created for distance learning, facilitates these instructional sessions. Within universities, colleges, institutes, and colleges, learning centers have been formed. Students have the chance to interact with live teaching sessions, recorded instructional material, Power Point presentations, and textual materials from these Learning Centers using internet connectivity through the Data Broadcasting System.

Internet usage integration is a key part of the Ministry of Education's initiative to improve the educational system. Local area networks (LAN) and wide area networks (WAN) have been adopted in institutions, universities, degree programs, and colleges. The Department of Higher Education (Lower Myanmar), the Department of Higher Education (Upper Myanmar), and the Department of Basic Education are just a few of the several organizations that make up this huge network. The main objective is to

convert this Wide Area Network into an Intranet and eventually create internet connectivity.

3.6 Enhancing Human Resource Capacity for ICT Advancement through Government Initiatives

Governmental agencies offer a variety of instructional sessions, seminars, and workshops to enhance the skills of ICT professionals. One of these is the Ministry of Education, which is crucial. It is commonly agreed that investing in education is an essential step toward advancing world development. As a result, it provides the framework for human resource development systems, which in turn support the growth of national economies and the establishment of governmental institutions. Education is essential for the growth of humans since it boosts people's ability to produce more in order to meet their requirements. The greater standard of living that results from this increased productive capacity also nurtures the confidence required to create and advance in all facets of life.

3.6.1 The Development and Policies of ICT Supporting Educational Technology in Myanmar

According to the International Telecommunication Union's 2017 ICT Development Index, Myanmar's ranking in the ICT index was noticeably lower than that of other ASEAN countries. According to The and USAGAWA (2018), which support this claim, the integration of ICT into Myanmar's educational framework has faced many challenges, including a lack of adequate communication infrastructure, a lack of ICT aptitude and knowledge, and a shortage of qualified human resources. Furthermore, just 5% of Myanmar's educational institutions have computer labs, according to statistics released by UNESCO in 2012. The potential effects of this situation on societal and economic advancement have been highlighted by the Myanmar government.

To overcome this challenge, the government has devised the ICT Master Plan, designed to revamp the economic and societal sectors. The Myanmar ICT Master Plan has been in existence since 2000 and comprises four sequential phases:

1. The initial ICT Master Plan, which covered the years 2000 to 2005, sought to hasten the adoption of ICT advancement and the wide-scale construction of ICT infrastructure.

2. The second ICT Master Plan, which ran from 2006 to 2010, focused on increasing communication delivery efficiency.
3. The third phase, the ICT Master Plan for 2011 to 2015, sought to increase ICT expertise and societal competitiveness, which would then promote economic growth. The third iteration concentrated on the incorporation of ICT training into school curricula, the provision of ICT training for educators, and the creation of a communication network for educational institutions, particularly in the area of education.
4. ICT strategic plan still in effect. Along with the ICT Master Plan, the government of Myanmar published a detailed Long-Term Education Plan for the succeeding three decades in 2001.

A five-year National ICT Master Plan was first created in 2000 with the intention of accelerating infrastructure development and establishing thorough ICT implementation strategies. The Fourth ICT Master Plan is now being implemented in Myanmar, with a strong focus on e-governance. More than ever, there is an urgent need for knowledgeable and experienced ICT experts. Although Myanmar has many highly skilled ICT graduates from different universities, both the governmental and business sectors still lack ICT competence (ICT Master Plan for e-Governance in Myanmar, 2015). Providing foundational ICT education is a crucial strategy for enhancing human resource development. There is also a pressing need to improve the IT literacy of government workers at all levels. For the development of ICT in Myanmar, it is essential that ICT graduates have the necessary technical proficiency, a fusion of business and IT competencies, and cognitive and behavioral traits encompassing critical thinking, problem-solving, and communication skills.

The integration of technology into the educational system is covered by the education development strategy. In order to improve community technical awareness, the government focuses a lot of emphasis on encouraging partnerships between local businesses and communities to build up multimedia classrooms and computer labs in secondary schools. In line with this, the strategy recommends that colleges build centers for learning and training in information technology. The Ministry of Education is building an educational intranet system to connect all educational institutions in order to support this initiative by strengthening the network infrastructure.

In order to integrate mobile technology into the educational environment, a partnership between the Myanmar government, tech companies including Ericsson and

Qualcomm, UNESCO, educational software makers, and Columbia University was launched in 2018. The goal of this effort was to give instructors the pedagogical, technical, and cognitive assistance they need to successfully incorporate mobile technology into their classrooms. The project has already produced significant infrastructure, including 3100 tablets and 186 computers given to teachers, along with in-depth training lasting more than 270 hours. In addition, the Ministry of Education in Myanmar has established 90 computer schools and is putting in place informal certification systems to help local communities improve their ICT skills.

CHAPTER IV
SURVEY ANALYSIS

4.1 Survey Profile

HPA-AN University is located in HPA-AN Township, the capital of Karen State. The university's current land area is 71.675 acres. It ranked 41st in Myanmar and 13266th in the world according to the world university ranking 2023. HPA-AN University plays a crucial role in providing education to students from 7 townships in Karen State. The University now has 14 major teaching departments, namely, Myanmar, English, Geography, History, Philosophy, Law, Oriented Studies, Economics, Biochemistry and Chemistry, Physics, Mathematics, Zoology, Botany and Geology. Currently, from the 2022-2023 academic year to the present, the university has 2,811 students and 248 teachers. According to the data there are 703 males and 2,108 females. Table (4.1) showed the number and sample students from the HPA-AN University.

Table (4.1) Number of Sample Students from the HPA-AN University

No	Subject	Student Population	Survey Sample
1	Myanmar	175	14
2	English	156	25
3	Geography	318	32
4	History	269	13
5	Philosophy	82	8
6	Law	96	15
7	Oriented Studies	75	5
8	Economics	30	6
9	Biochemistry and Chemistry	335	49
10	Physics	471	48
11	Mathematics	350	52
12	Zoology	171	19
13	Botany	163	8
14	Geology	120	3
	Total	**2,811**	**297**

Source: Student affairs, HPA-AN University, (2023).

4.2 Survey Design

This survey was conducted at the HPA-AN University in Myanmar. In this study, students' perception in the use of ICT in learning activities at HPA-AN University. The required minimum sample size was calculated using the following formula (Cochran, 1977).

Z^2 = confidence interval

N = population size

p = 0.5 (assuming a 50% probability)

q = the complementary probability to 1 - p = 1 - 0.5 = 0.5

E = 0.055 (margin of error)

n = sample size

$$n = \frac{Z^2 pq}{E^2} = \frac{1.96^2 \times 0.5 \times 0.5}{0.055^2} = 317$$

The students were 2811 and the selected students were 317.Since sample size exceeds 5 % of the population (2811×0.05=141 students), the final sample size was calculated. Therefore, the final sample size becomes as followed.

$$n = \frac{n_0}{1+\frac{n_0}{N}} = \frac{317}{1+\frac{317}{2811}} = 282$$

In many education and social research surveys, the response rates are normally well below 100%. In this study, the response rate was assumed 95%. The minimum sample size was (282÷0.95=297). Therefore, the required minimum sample size was 297 students.

The required data were collected from undergraduate students and master students by using structured questionnaire. The questionnaire consists of six parts in the survey. The first part includes respondent's general characteristics. The second part consists of 9 questions related to the use of ICT (Information and Communication Technology) and Mobile Applications. Part three focuses on technology integration and the evolution of M-Learning and consists of 4 questions. Part four consists of 7 questions designed to measure students' perception of ICT and M-learning. Part five consists of 2 questions aimed at assessing the students' familiarity with computer

training. Part 6 includes a set of 3 questions. These questions encompass students' perceptions, attitudes, and satisfaction with the use of ICT in learning activities.

4.2.1 Reliability Analysis

The study also examined the instrument's dependability in order to generate a Cronbach alpha result and determine whether the items included in each dimension are real or not. Reliability gives consistent results when measurements of the attributes are repeated. In order to measure reliability, one uses the Cronbach's alpha coefficient. According to Hair et al. (1992), the Cronbach alpha procedure is an estimate of reliability based on the average correlation between items within each dimension where 0.7 is sufficient and the score of over 0.9 is considered to be excellent. The strength of the figure can be seen in Table (4.2).

Table (4.2) Cronbach Alpha Analysis (Reliability Test)

No	Variable	No of items	Cronbach (α)
1	Students' perceptions of the use of ICT in learning activities	5	0.933
2	Students' attitudes of the Use of ICT in learning activities	5	0.811
3	Students' Satisfaction of the Use of ICT in learning activities	5	0.703

Source: Survey Data (August, 2023)

The Cronbach Alpha value of students' perceptions is 0.933, students' attitudes is 0.811, and students' satisfaction is 0.703. The Cronbach Alphas' value for all variables is greater than 0.7, so this result is acceptable.

4.3 Analysis of Survey Results

The first part of the respondents' profits reveals the socio-demographic information. The study identifies their characteristics, where to examines these respondents show signs of different factors or not. Table (4.3) shows the socio-demographic characteristics of the respondents in the study area.

Table (4.3) Demographic Profiles of Respondents

No.	Description	Particular	Frequency	Percentage (%)
1.	Gender	Male	112	38
		Female	185	62
Total			297	100
2	Age	under 18	7	2.4
		between 18-20 years	158	53.2
		between 20-25 years	132	44.4
Total			297	100
3	Education	Undergraduate	281	94.6
		Graduate	11	3.7
		PhD (Prelim)	5	1.7
Total			297	100
4	Major	-Myanmar	14	4.7
		-English	25	8.4
		-Geography	32	10.8
		-History	13	4.3
		-Philosophy	8	2.7
		-Law	15	5.1
		-Oriented Studies	5	1.6
		-Economics	6	2.1
		-Biochemistry and Chemistry	49	16.5
		-Physics	48	16.2
		-Mathematics	52	17.5
		-Zoology	19	6.4
		-Botany	8	2.7
		-Geology	3	1.0
Total			297	100

Table (4.3) Demographic Profiles of Respondents (Continued)

No.	Description	Particular	Frequency	Percentage (%)
5	Internet Expense	≤ 5,000 kyat	17	5.7
		10,001 - 15,000 kyat	111	37.4
		15,001 - 20,000 kyat	110	37
		20,001 - 25,000 kyat	10	3.4
		25,001 kyat and above	5	1.7
		5,001 - 10,000 kyat	44	14.8
Total			297	100
6	Provider of monthly expenses on internet	Parents	266	90.0
		Brother / Sister	21	6.8
		Relatives	4	1.3
		Yourself	4	1.3
		Other	2	0.6
Total			297	100
7	Mobile Service Provider			
		ATOM	110	26.60
		MPT	47	11.40
		Mytel	241	58.40
		Ooredoo	5	3.60
8	Devices for internet usage	Desktop	2	0.60
		Laptop	19	6.00
		Mobile Phone	293	93.00
		Other	1	0.30
9	Using the internet	Yes	293	98.7
		No	4	1.3
Total			297	100
10	Internet access	Fiber Internet	5	1.50
		Free Wi-Fi	22	6.70
		Mobile Data	281	86.20
		Paid Wi-fi	18	5.50
11	Place of using the internet	At home/ dormitory/ hostel	264	75.20
		At university/ Library	82	23.40
		At work	2	0.60
		Other	3	0.90

Table (4.3) Demographic Profiles of Respondents (Continued)

No.	Description	Particular	Frequency	Percentage (%)
12	Purpose of using internet	Chatting	117	22.90
		Communication	194	38.00
		Learning	200	39.10
13	Using E-mail for learning purposes	Yes	168	56.6
		No	129	43.4
Total			297	100

Source: Survey Data (August, 2023)

According to the table (4.3), all respondents consisted of 112 males and 185 females. The percentage of the women is 82.2% more than the percentage of the men of 17.8%. This result is the most of respondents in the university, students, and professionals are women. The age range of respondents were age under 18 with 2.4%, age 18-20 with 53.2%, and age 20-25 with 44.4%. The 18-20 age group measured for the highest number of respondents with 53.2%.

At the education level, 1.7% of respondents were pursuing a PhD (preliminary), while 94.6% were undergraduate students, and 3.7% held a bachelor's degree. Although most respondents were undergraduates, it's worth noting that 3.7% of them have already achieved a bachelor's degree and are now pursuing various master's degree programs at HPA-AN University. In the major section, the data reveals the distribution of students across different majors. The most popular major among the surveyed students is Math, accounting for 17.5% of the total respondents. This is followed by Chemistry at 16.2% and Physics at 13.8%. Other notable majors include Geography (10.8%) and English (8.4%). It is worth noting that Biochemistry, Department of Law, Geology, History, Oriental Studies, and Philosophy have relatively low representation, each comprising less than 5% of the respondents.

The "Expense on Internet" section provides insights into the amount of money spent on internet services by the surveyed individuals. A large percentage of respondents (37.4%) said they spent between 10,000 and 15,000 kyat on internet costs. Spending between 15,001 and 20,000 kyat (37%), which is next in line, comes in

second. On the lower end, 5.7% of respondents spend less than or equal to 5,000 kyat, while only 1.7% spend 25,001 kyat and above.

The "Provider of monthly expenses on internet" section highlights the sources of financial support for internet expenses. The data shows that the majority of respondents (90%) rely on their parents to cover their monthly internet expenses. A smaller percentage of respondents reported relying on themselves (1.3%), brothers/sisters (6.8%), or relatives (1.3%) for financial support. Only a negligible percentage (0.6%) indicated other sources as their providers.

"Mobile Phone Operators," provides information about the mobile phone operators used by the respondents. MYTEL is the most popular mobile phone operator among the surveyed individuals, with 58.4% of respondents using it. ATOM and MPT follow with 26.6% and 11.4% respectively. Ooredoo has the lowest market share at 3.6%. It is worth mentioning that the data indicates a total of 413 responses, suggesting that some respondents may use multiple mobile phone operators.

The "Devices" section sheds light on the devices used by the respondents for their communication needs. The majority of respondents (93%) reported using mobile phones as their primary communication device. Laptops accounted for 6% of respondents, while desktop computers and other devices had minimal representation. This indicates the widespread use of smartphones among the surveyed individuals for their communication and internet needs. Among those who use internet access, 281 out of the majority respondents utilize mobile data, accounting for 86.20%. In contrast, the majority of the secondary users enjoy free Wi-Fi, with 22 out of them, constituting 6.70%. Fiber Internet and paid Wi-Fi users contribute to 6% of the respondents, each with their respective associated costs.

According to the data, the location where the majority of respondents use the internet accounts for 75.20% of the total respondents. Among these, individuals who access the internet at universities and libraries make up 23.40% of the total respondents. Among 297 respondents, 168 respondents of the total are using their mobile phones with connecting and registering with their personal email address for the sake of emergency case and to restore and backup their personal contacts over the email servers.

Table (4.4) ICT Usage and Mobile Application Usage

No.	Description	Particular	Frequency	Percentage (%)
1.	Using ICT tools in learning activities	Always	36	12.1
		Occasionally	20	6.7
		Often	59	19.9
		Rarely or never	26	8.8
		Sometimes	156	52.5
Total			**297**	**100**
2	ICT tools using most frequently in learning activities	-Educational apps or Software	96	27.70
		-Interactive Whiteboards	55	15.90
		-Learning Management Systems (e.g., Moodle, Blackboard)	34	9.80
		-Multimedia presentations (e.g., PowerPoint, Prezi)	28	8.10
		-Online Collaboration tools (e.g., Google Docs, Microsoft Teams)	74	21.40
		-Online research and resources	56	16.20
		-Other	3	0.90
3	Training or professional development related to using ICT in learning activities	Yes	100	33.7
		No	197	66.3
Total			297	100

Table (4.4) ICT Usage and Mobile Application Usage (Continued)

No.	Description	Particular	Frequency	Percentage (%)
4	Level of Confident	confident	147	49.5
		Extremely confident	26	8.8
		Neutral	107	36
		Not at all confident	8	2.7
		Not confident	9	3
Total			297	100
5	Free Wi-Fi availability	Yes	120	40.4
		No	177	59.6
Total			297	100
6	Hindrance in Electricity shortage	Agree	131	44.1
		Disagree	17	5.7
		Neutral	58	19.5
		Strongly agree	42	14.1
		Strongly disagree	49	16.5
Total			297	100
7	Using mobile applications	Daily	266	89.6
		Monthly	16	5.4
		Rarely	8	2.7
		Weekly	7	2.4
Total			297	100
8	Mobile applications used for learning and teaching purposes	Microsoft Teams	12	2.50
		Telegram	154	32.00
		Whats App	24	5.00
		You Tube	234	48.60
		Other	57	11.90
9	Effectiveness in mobile applications for enhancing learning	Effective	208	70
		Extremely effective	22	7.4
		Neutral	58	19.5
		Not effective	6	2
		Not effective at all	3	1
		Total	297	100

Source: Survey Data (August, 2023)

The respondents in the study area's ICT and mobile application usage is displayed in the table (4.4). The statistics in the section under "Using ICT tools in learning activities" shows how frequently ICT tools are used in educational contexts, according to the survey data. Among the surveyed individuals, 52.5% reported using ICT tools sometimes, followed by often (19.9%) and occasionally (6.7%). A smaller percentage of respondents reported always using ICT tools (12.1%), while 8.8% reported rarely or never using them. This suggests that ICT tools are moderately employed in teaching and learning activities.

The "ICT tools using most frequently in teaching/learning activities" section highlights the specific ICT tools that are commonly used in educational settings. Educational apps or software are the most frequently used ICT tools, reported by 27.7% of the respondents. This is followed by interactive whiteboards (15.9%) and online collaboration tools such as Google Docs and Microsoft Teams (21.4%). Other frequently used tools include learning management systems (9.8%), multimedia presentations (8.1%), and online research and resources (16.2%).

The data regarding training or professional development related to using ICT in teaching/learning activities indicates that 33.7% of the surveyed individuals have received training or professional development in this area. On the other hand, 66.3% reported not having received any training. This suggests that a significant majority of respondents have not received some form of training to enhance their competency in using ICT tools for educational purposes.

The "Confident feels in using ICT tools in teaching/learning activities" section reveals the respondents' level of confidence in using ICT tools. Approximately half of the respondents (49.5%) reported feeling confident in their use of ICT tools, while 8.8% expressed being extremely confident. A significant portion of respondents (36%) reported a neutral level of confidence, while only a small percentage (2.7%) indicated not feeling confident or not at all confident.

The availability of free Wi-Fi was assessed in the survey, and the results indicate that 40.4% of the respondents have access to free Wi-Fi. However, a large proportion (59.6%) reported not having access to free Wi-Fi. This suggests that the majority of respondents have not the convenience of free Wi-Fi, which can support their use of ICT tools and mobile applications.

The survey also explored the hindrance caused by electricity shortages in using ICT tools. Among the respondents, 44.1% agreed that electricity shortages are a

hindrance, while 14.1% strongly agreed. On the other hand, 5.7% disagreed and 16.5% strongly disagreed that electricity shortages pose a hindrance. Approximately 19.5% of the respondents expressed a neutral opinion on this matter. This indicates that a significant percentage of respondents perceive electricity shortages as a hindrance to using ICT tools in teaching and learning activities.

The frequency of mobile application usage among the surveyed individuals was assessed. The majority of respondents (89.6%) reported using mobile applications on a daily basis. A smaller percentage reported using them on a monthly (5.4%) or weekly (2.4%) basis, while only 2.7% reported rare usage. This indicates the widespread and frequent use of mobile applications among the surveyed individuals.

The "Mobile applications used for learning and teaching purposes" section reveals the specific mobile applications used for educational purposes. Among the respondents, the most commonly used mobile application for learning and teaching purposes is YouTube, reported by 48.6% of the respondents. Telegram is the second most popular choice (32%), followed by other applications (11.9%), Microsoft Teams (2.5%), and WhatsApp (5%).

The effectiveness of mobile applications in enhancing learning and teaching was assessed. Among the respondents, the majority (70%) perceived mobile applications as effective in enhancing learning and teaching. Additionally, 7.4% considered them extremely effective, while 19.5% had a neutral opinion. A small percentage of respondents (3%) reported that mobile applications were not effective or not effective at all. This suggests that the majority of respondents find mobile applications beneficial in supporting educational activities.

Overall, the data provides insights into the usage of ICT tools and mobile applications in teaching and learning activities. It reveals the frequency of ICT tool usage, common ICT tools employed, training received in using ICT, confidence levels in using ICT tools, availability of free Wi-Fi, hindrances caused by electricity shortages, frequency of mobile application usage, specific mobile applications used for educational purposes, and perceptions of mobile application effectiveness. These findings can be valuable for understanding the integration of technology in educational settings and informing strategies for enhancing teaching and learning experiences.

Table (4.5) Technology Integration and M-Learning Evolution

No.	Description	Particular	Frequency	Percentage (%)
1.	Technology integration	Always	20	6.7
		Occasionally	26	8.8
		Often	101	34
		Rarely or never	9	3
		Sometimes	141	47.5
Total			297	100
2.	Observation on the changes in the use of mobile devices and technologies	Yes	266	89.6
		No	31	10.4
Total			297	100
3.	Opinion on how m-learning has evolved over time	-Educational apps or Software	96	27.70
		-Interactive Whiteboards	55	15.90
		-Learning Management Systems (e.g., Moodle, Blackboard)	34	9.80
		-Multimedia presentations (e.g., PowerPoint, Prezi)	28	8.10
		-Online Collaboration tools (e.g., Google Docs, Microsoft Teams)	74	21.40
		-Online research and resources	56	16.20
		-Other	3	0.90
4	Familiarity with the concept of m-learning	Yes	105	35.4
		No	17	5.7
		May be	175	58.9
Total			297	100

Source: Survey Data (August, 2023)

The progress of M-learning and the integration of technology among the respondents in the study region are displayed in Table (4.5). The study offers the frequency and percentage of responses about the inclusion of technology in teaching and learning activities based on the survey data. Of the 297 respondents, 6.7% said they always include technology, 8.8% said they do so occasionally, 34% said they do it frequently, 3% said they rarely or never do it, and the bulk, 47.5%, said they do so occasionally. The study offers views on how the use of mobile technology and gadgets has changed. Out of the 297 respondents, 89.6% said they had noticed changes in how people were using mobile devices and other technologies, while 10.4% said they had not.

Regarding the evolution of m-learning over time, the study presents the number of responses and percentages for different aspects. Among the 346 responses, 27.7% mentioned educational apps or software as a significant evolution in m-learning, 15.9% highlighted interactive whiteboards, 9.8% mentioned learning management systems (e.g., Moodle, Blackboard), 8.1% referred to multimedia presentations (e.g., PowerPoint, Prezi), 21.4% emphasized online collaboration tools (e.g., Google Docs, Microsoft Teams), 16.2% mentioned online research and resources, and 0.9% provided other responses. The participants' familiarity with the concept of m-learning is also addressed in this study. Out of the 297 respondents, 58.9% indicated that they may be familiar with m-learning, 5.7% responded negatively, and 35.4% stated that they are familiar with m-learning.

Table (4.6) Perceptions of ICT and M-learning

No.	Description	Particular	Frequency	Percentage (%)
1.	The use of ICT that enhances learning activities	Not at all	9	3
		To a great extent	113	38
		To a moderate extent	142	47.8
		To a small extent	22	7.4
		To a very great extent	11	3.7
Total			297	100

Table (4.6) Perceptions of ICT and M-learning (Continued)

No.	Description	Particular	Frequency	Percentage (%)
2.	Opinion on how m-learning contributes to student engagement and motivation	-It does not contribute significantly.	9	3
		-It greatly enhances student engagement and motivation.	77	25.9
		-It moderately enhances student engagement and motivation.	103	34.7
		-It provides some level of engagement and motivation.	74	24.9
		-It significantly transforms student engagement and motivation.	34	11.4
Total			297	100
3	The integration of m-learning should be further promoted in education settings	Yes	172	57.9
		No	5	1.7
		May be	120	40.4
Total			297	100
4	Recommendation on the use of m-learning to other educators/students	Effective	172	57.9
		Extremely effective	17	5.7
		Neutral	106	35.7
		Not effective at all	2	0.7
Total			297	100

Table (4.6) Perceptions of ICT and M-learning (Continued)

No.	Description	Particular	Frequency	Percentage (%)
5.	The perception of the use of ICT and m-learning in teaching and learning activities	Very negative	4	1.3
		Negative	2	0.7
		Neutral	93	31.3
		Positive	182	61.3
		Very Positive	16	5.4
Total			297	100
6.	The benefits of using ICT in learning activities	-Access to a wide range of information and resources.	93	21.00
		-Customization of learning experiences.	48	10.90
		-Enhanced collaboration and communication among students.	68	15.40
		-Improved student motivation.	120	27.10
		-Increased student engagement.	113	25.60
7.	Perception on the Challenges or limitations in using ICT in learning activities	-Concerns about technology replacing traditional teaching methods.	42	10.40
		-Insufficient training or knowledge.	173	43.00
		-Lack of access to necessary ICT resources.	87	21.60
		-Other.	16	4.00
		-Technical issues or limitations.	84	20.90
Total			297	100

Source: Survey Data (August, 2023)

The use of mobile learning (m-learning) and information and communication technology (ICT) in teaching and learning activities is examined in Table (4.6). It displays the response frequency and percentage for several categories.

Table (4.7) Computer Training

No.	Description	Particular	Frequency	Percentage (%)
1.	**Learning using a computer**	-Computer training class in person.	139	43.70
		-Computer training class online.	45	14.20
		-Online learning or self-learning (e.g., You Tube Video, CD).	102	32.10
		-Other	32	10.10
2.	Computer courses	-Adobe Photoshop Course.	7	2.4
		-Advanced Excel Course.	6	2
		-Basic Computer Course (e.g., Auto CAD Intermediate Course).	10	3.4
		-Basic Computer Course (e.g., Microsoft word, Excel, PowerPoint).	241	81.1
		-I Office Course (AutoCAD Advanced Course).	2	0.7
		-MYOB accounting software.	6	2
		-Other.	25	8.4
Total			297	100

Source: Survey Data (August, 2023)

The data table (4.7) in this part of the document, which focuses on computer training, gives responses to questions on various teaching methods and particular computer courses.

Regarding learning using a computer, out of 318 responses, 43.7% mentioned attending a computer training class in person, 14.2% reported participating in online computer training classes, 32.1% indicated engaging in online learning or self-learning through platforms like YouTube videos or CDs, and 10.1% provided other responses.

The study also addresses the specific computer courses taken by the respondents. Among the computer courses mentioned, the most popular course was the Basic Computer Course, which included training in Microsoft Word, Excel, and PowerPoint. This course was taken by a significant majority, with 81.1% of the respondents indicating that they had completed this training. The next most commonly mentioned courses were the Adobe Photoshop Course and the Advanced Excel Course. These courses were taken by 2.4% and 2% of the respondents, respectively.

Additionally, 3.4% of the participants reported completing a Basic Computer Course with an intermediate level in AutoCAD, while 0.7% mentioned taking an I Office Course that included an advanced AutoCAD component. MYOB accounting software and other computer courses were mentioned by 2% and 8.4% of the respondents, respectively.

Table (4.8) Students' Perceptions of the Use of ICT in Learning Activities

No.	Variable	Mean	Std. Deviation
1.	M-learning has the potential to enhance student learning outcomes.	3.91	0.817
2.	Integrating ICT and m-learning is essential for preparing students for the digital age.	3.80	0.894
3.	M-learning provides opportunities for personalized and self-directed learning.	3.89	0.808
4.	The use of technology in teaching and learning activities improves student engagement.	4.08	0.892
5.	Professional development programs should focus more on technology integration and m-learning.	3.88	0.928
	Overall mean	3.91	0.868

Source: Survey Data (August, 2023)

The majority of the questions pertaining to the students' impressions about the use of ICT in learning activities are provided in Table (4.8). The linked meaning that the characteristics of the students' perceptions showed that the pupils were perceived as being of current value (M = 3.9). The distribution of the answers is shown in Table 4.8. Students are satisfied with the use of ICT in learning activities, according to the overall mean (M=3.91, SD=0.868).

The students generally have positive perceptions of the use of ICT in learning activities. They recognize the potential of mobile learning (m-learning) to enhance learning outcomes and provide opportunities for personalized and self-directed learning. They also believe that integrating ICT and m-learning is essential for preparing students for the digital age. Moreover, they perceive that the use of technology in teaching and learning activities improves student engagement. Professional development programs should focus more on technology integration and m-learning according to student opinions.

Table (4.9) Students' Attitudes of the Use of ICT in Learning Activities

No.	Variable	Mean	Std. Deviation
1.	Online resources complement my traditional classroom learning.	4.20	0.75
2.	ICT tools are essential for completing assignments and projects.	3.75	0.82
3.	Using technology in my studies improves my problem-solving skills.	3.90	0.79
4.	The use of ICT enhances my understanding of complex topics in my studies.	4.05	0.80
5.	Access to the internet is important for my academic success.	3.80	0.85
	Overall mean	3.94	0.80

Source: Survey Data (August, 2023)

The majority of the questions regarding students' attitudes toward the use of ICT in learning activities are provided in Table (4.9). The aforementioned indicates that the students' attitudes and personality traits showed that they were content with the existing

usefulness (M = 3.9). The distribution of the answers is shown in Table 4.9. Students are satisfied with the use of ICT in learning activities, according to the overall mean (M=3.94, SD=1.43).

The students hold positive attitudes towards the use of ICT in learning activities. They believe that online resources complement their traditional classroom learning and that ICT tools are essential for completing assignments and projects. They also recognize that using technology in their studies improves their problem-solving skills. However, it is important to note that there might be a typographical error or anomaly in the data for the statement regarding the enhancement of understanding complex topics.

Table (4.10) Students' Satisfaction of the Use of ICT in Learning Activities

No.	Variable	Mean	Std. Deviation
1.	The availability of ICT resources improves my learning experience.	4.10	0.72
2.	Using technology tools such as computers, software, and online resources has positively impacted my academic performance.	4.05	0.78
3.	The availability of online resources supports self-directed learning.	3.95	0.81
4.	The ICT infrastructure (e.g., internet speed, availability of devices) in my educational institution meets my expectations.	4.15	0.76
5.	ICT tools help me access educational materials more conveniently.	4.00	0.79
	Overall mean	4.05	0.77

Source: Survey Data (August, 2023)

Most of the questions about students' satisfaction with the use of ICT in learning activities are included in Table 4.10, as can be seen. The linked term denotes that the satisfaction attributes of the students showed that they were satisfied with the current usefulness (M = 4.05). The distribution of the responses is summarized in Table 4.10.

The total mean (M=4.05, SD=0.77) also shows that students are satisfied with the usage of ICT in educational activities.

The students express a high level of satisfaction with the use of ICT in learning activities. They perceive that the availability of ICT resources improves their learning experience, and using technology tools positively impacts their academic performance. They also believe that the availability of online resources supports self-directed learning. Furthermore, they are satisfied with the ICT infrastructure provided by their educational institution, and ICT tools help them access educational materials more conveniently.

4.3.1 Exploring Students' Overall Perception, Attitude, and Satisfaction in the Use of ICT for Learning Activities

This research is described about the overall student satisfaction on the impacts of mobile phones usage. Each variable show student respondents as mean score.

Table (4.11) Exploring Students' Overall Perception, Attitude, and Satisfaction in the Use of ICT for Learning Activities

No.	Description	Mean Score
1.	Students' perceptions of the use of ICT in learning activities	3.91
2.	Students' attitudes of the Use of ICT in learning activities	3.94
3.	Students' Satisfaction of the Use of ICT in learning activities	4.05
	Overall mean	3.97

Source: Survey Data (August, 2023)

Examining students' general perceptions, attitudes, and satisfaction with the use of ICT for educational activities is shown in Table (4.11). (Overall mean = 3.97) Student respondents are related to satisfaction with ICT usefulness for learning activities. The use of ICT in learning activities overall satisfaction at HPA-AN University is 3.97, suggesting that ICT usage in learning activities on the community is satisfied there.

According to the overall results, the students' perceptions, attitudes, and satisfaction levels indicate a positive reception of ICT in learning activities, highlighting its potential to enhance learning outcomes, engagement, and overall learning experience.

CHAPTER V
CONCLUSION

5.1 Findings

The HPA-AN University reports that there are currently 2811 students overall, including 703 men and 2,108 women. The HPA-AN University has 14 departments. Using a simple random selection procedure using the Cochran (1977) formula, a sample of 297 students was randomly chosen for this study from the 2811 students enrolled in the 14 departments of the HPA-AN University. Data was gathered using well-structured questionnaires.

This study shows that students' perceptions, attitudes, and satisfaction levels is necessary to determine the use of ICT in the learning activities at HPA-AN University and to find out challenges related to the use of ICT tools in educational institutions for the purpose of enhancing student engagement, comprehension, and performance through effective ICT integration. This study found that most of the people who answered the survey (62% of females and 38% of males) were between the ages of 18 and 20 (53.2%), and most of them were taking undergraduate courses at HPA-AN University. The majority of respondents are Physics, Biochemistry and Chemistry, and Mathematics major students, with 16.2%, 16.5%, and 17.5%, respectively.

In the sample of 297 respondents, 168 respondents of the total are using their mobile phones to connect and register with their personal email addresses for the sake of emergency situations and to restore and backup their personal contacts over the email servers and learning purposes. The majority of respondents (93%) reported using mobile phones as their primary communication device. This indicates the widespread use of smartphones among the surveyed individuals for their communication and internet needs.

According to information on training or professional development connected to using ICT in teaching and learning activities, 33.7% of those who participated in the study have done so. However, 66.3% said they had not received any instruction. This

implies that a sizable portion of the respondents have not undergone any kind of training to improve their proficiency in using ICT tools for educational purposes. Nearly 50% of respondents (49.5%) said they felt confident using ICT tools, and 8.8% said they felt highly confident. Only a tiny number (2.7%) of respondents said they felt neither very confident nor at all confident, a large amount (36%) of respondents reported a neutral degree of confidence.

The survey also explored the hindrance caused by electricity shortages in using ICT tools. Among the respondents, 44.1% agreed that electricity shortages are a hindrance, while 14.1% strongly agreed. This indicates that a significant percentage of respondents perceive electricity shortages as a hindrance to using ICT tools in teaching and learning activities.

Regarding the promotion of m-learning in educational settings, 40.4% of the respondents indicated that it may be further promoted, 1.7% responded negatively, and 57.9% stated that it should be further promoted. When it comes to recommending the use of m-learning to other educators and students, 57.9% of the respondents found it effective, 5.7% considered it extremely effective, 35.7% held a neutral opinion, and 0.7% considered it not effective at all. The perception of the use of ICT and m-learning in teaching and learning activities was also measured. Among the 297 respondents, 1.3% had a very negative perception, 0.7% had a negative perception, 31.3% had a neutral perception, 61.3% had a positive perception, and 5.4% had a very positive perception.

The primary benefits associated with the use of ICT in teaching and learning activities were identified. Out of 442 responses, 21% mentioned access to a wide range of information and resources, 10.9% highlighted customization of learning experiences, 15.4% emphasized enhanced collaboration and communication among students, 27.1% reported improved student motivation, and 25.6% mentioned increased student engagement.

The challenges and limitations of using ICT in teaching and learning activities were also identified. Among the 402 responses, 10.4% expressed concerns about technology replacing traditional teaching methods, 43% mentioned insufficient training or knowledge, 21.6% reported a lack of access to necessary ICT resources, 4% provided other challenges, and 20.9% mentioned technical issues or limitations.

A mean score of 4.08 and a standard deviation of 0.892 for students' perceptions of the use of ICT in learning activities show strong agreement that incorporating technology into teaching and learning activities increases student engagement. The majority of respondents also strongly agreed that mobile learning (M-learning) had the potential to improve student learning outcomes, with a mean score of 3.91 and a standard deviation of 0.817. With a mean of 3.80 and a standard deviation of 0.894, respondents also said that integrating ICT and M-learning is crucial for educating students for the digital age. Additionally, a mean score of 3.88 and a standard deviation of 0.928 indicate that respondents think technology integration and M-learning should be given priority in professional development programs. In summary, the overall mean of students' perceptions of the use of ICT in learning activities is 3.91, indicating a moderate level of acceptance among students at HPA-AN University.

When considering students' attitudes, it is evident that the respondents strongly agreed with several statements. They strongly agreed that online resources complement traditional classroom learning, as indicated by a mean score of 4.20 and a standard deviation of 0.75. Similarly, they strongly agreed that the use of ICT enhances the understanding of complex topics in their studies, as demonstrated by a mean score of 4.05 with a standard deviation of 0.80. The respondents also expressed agreement that using technology in their studies improves problem-solving skills, as evidenced by a mean score of 3.90 and a standard deviation of 0.79. Additionally, the respondents agreed that access to the internet is crucial for their academic success, as indicated by a mean score of 3.80 and a standard deviation of 0.85. Furthermore, the respondents agreed that ICT tools are essential for completing assignments and projects, with a mean score of 3.75 and a standard deviation of 0.82. In summary, it is apparent that there is a moderate level of students' attitudes toward the use of ICT in learning activities at HPA-AN University, with an overall mean score of 3.94 across the responsiveness dimensions.

Regarding with students' satisfaction, it can be seen that the respondents strongly agreed that the ICT infrastructure (e.g., internet speed, availability of devices) in the educational institution meets expectations, as shown by a mean of 4.15 and a standard deviation of 0.76. The respondents believed that having access to ICT resources enhances the learning process, as evidenced by a mean score of 4.10 and a standard deviation of 0.72. Asked if they felt in using technology tools has positively

impacted their academic performance, the respondents agreed as indicated by a mean of 4.05 and a standard deviation of 0.78. On whether the ICT tools help the access educational materials more conveniently, the respondents agreed as indicated by a mean of 4.00 and a standard deviation of 0.79. On the question of whether the availability of online resources supports self-directed learning, the respondents agreed as indicated by a mean of 3.95 and a standard deviation of 0.81. It is found that, there is a satisfactory level of students' satisfaction of the use of ICT in learning activities at HPA-AN University as the overall mean of responsiveness dimensions is 4.05.

Factors influencing students' overall perception, attitude, and satisfaction are critical for positive learning experiences with the use of ICT. According to the summarized results, students are most agreeable regarding the positive outcomes of these factors. For future development in the learning system, it was found that e-education was used for a variety of learning and teaching methods during lectures and practical sessions. Therefore, students in the modern age would likely be interested in learning with advanced technology at HPA-AN University.

5.2 Suggestions

According to the findings of this study, the university should continue to hire highly educated teachers to ensure that students receive training related to ICT usage in learning activities and to improve the high level of education it provides. The study suggests that HPA-AN University should ensure the continuous availability of sufficient electricity, learning materials, and high levels of technology in learning equipment, while also maintaining a manageable number of students to continue meeting students' perceptions, attitudes, and satisfaction. Furthermore, the study recommends that the university should reward satisfied students, as well as students who attract new students through word-of-mouth. Recognize and reward students who return for further studies after completing one stage. The study also suggests that the university should assess student perceptions during their first-year enrollment and adopt strategies to facilitate student improvement. In addition, collaborating with students to design courses related to ICT usage in the University timetable and integrating ICT tools and resources that enhance student engagement and comprehension is essential. It's important to ensure that digital materials align with learning objectives and to provide professional development opportunities for students to improve their ICT

integration skills and pedagogical techniques for online learning. Allocating resources for upgrading technology infrastructure, purchasing educational software licenses, and supporting students in their ICT use is also crucial. By implementing these suggestions, HPA-AN University can work towards enhancing students' perceptions, attitudes, and satisfaction with ICT in learning, ultimately improving their engagement, comprehension, and performance.

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APPENDIX - QUESTIONNAIRE

"Students' Perceptions of the Use of ICT in Teaching and Learning Activities (A Case Study at HPA-AN University)"

Survey Questions

No.	Section A: Characteristics of Respondents
1	Male/Female
2	Age group 1. under 18 years 2. 18-20 years 3. 20-25 years 4. over 25 years
3	Education level or Class 1. First year 2. Second year 3. Third year 4. Fourth year 5. First year Honors (H1) 6. Second year Honors (H2) 7. Third year Honors (H3) 8. M.A/MSc (Q) 9. The First Year of a Master's degree program 10. The Second Year of a Master's degree program 11. PhD (Prelim)
4	Major ……
5	How much money do you spend a month for the internet? Please answer the questions by circling the numbers. 1. ≤ 5,000 kyat 2. 5,001 – 10,000 kyat 3. 10,001 – 15,000 kyat 4. 15,001 – 20,000 kyat 5. 20,001 – 25,000 kyat 6. 25,001 kyat and above

6	Who provides your monthly expenses? 1. Parents 2. Brother / Sister 3. Relatives 4. Yourself 5. Other…….
7	Present Using Mobile Phone Operators. (Select all that apply) 1. MPT 2. Ooredoo 3. Mytel 4. ATOM
8	In present, which device do you use mostly for internet? (Select all that apply) 1. Mobile Phone 2. Laptop 3. Desktop 4. Other…….
9	Do you use the internet? Please answer the questions by circling the numbers. 1. Yes 2. No
10	How do you get the internet access mostly? 1. Mobile Data 2. Fiber Internet 3. Paid Wifi 4. Free Wi-Fi
11	Where do you usually use the internet? Please answer the questions by circling the numbers. 1. At home/ dormitory/ hostel 2. At university / library 3. At work 4. Other……
12	What purpose do you use the internet for? Please answer the questions by circling the numbers.

	1. Communication 2. Chatting 3. Learning
13	Are you using E-mail for learning purposes in the university? Please answer the questions by circling the numbers. 1. Yes 2. No
No.	**Section B: ICT Usage and Mobile Application Usage** ICT (Information communication and technology)
14	How frequently do you use ICT tools in teaching/learning activities? Please answer the questions by circling the numbers. 1. Rarely or never 2. Occasionally 3. Sometimes 4. Often 5. Always
15	Which of the following ICT tools do you use most frequently in teaching/learning activities? (Select all that apply) 1. Interactive whiteboards 2. Learning management systems (e.g., Moodle, Blackboard) 3. Online collaboration tools (e.g., Google Docs, Microsoft Teams) 4. Educational apps or software 5. Multimedia presentations (e.g., PowerPoint, Prezi) 6. Online research and resources 7. Social media platforms 8. Other…….
16	Have you received any training or professional development related to using ICT in teaching/learning activities? Please answer the questions by circling the numbers. 1. Yes 2. No
17	How confident do you feel in using ICT tools in teaching/learning activities? Please answer the questions by circling the numbers.

	1. Not at all confident 2. Not confident 3. Neutral 4. confident, 5. Extremely confident
18	Is free wifi installed inside the university? Please answer the questions by circling the numbers. 1. Yes 2. No
19	Electricity shortage is hindrance. Please answer the questions by circling the numbers. 1. Strongly disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree
20	How frequently do you use mobile applications? Please answer the questions by circling the numbers. 1. Daily 2. Weekly 3. Monthly 4. Rarely
21	Which mobile applications do you use for learning and teaching purposes? (Select all that apply) 1. Telegram 2. Microsoft Teams 3. You Tube 4. WhatsApp 5. Other…….
22	On a scale of 1 to 5, how effective do you find mobile applications for enhancing learning and teaching? Please answer the questions by circling the numbers. 1. Not effective at all

	2. Not effective 3. Neutral 4. effective 5. Extremely effective
No.	**Section C: Technology integration and M-Learning Evolution** M-learning, or mobile learning, is a form of distance education where learners use portable devices such as mobile phones to learn anywhere and anytime. The portability that mobile devices provide allows for learning anywhere, hence the term "mobile" in "mobile learning".
23	How frequently do you integrate technology into your teaching/learning activities? Please answer the questions by circling the numbers. 1. Rarely or never 2. Occasionally 3. Sometimes 4. Often 5. Always
24	Have you observed changes in the use of mobile devices and technologies for educational purposes in recent years? Please answer the questions by circling the numbers. 1. Yes 2. No
25	In your opinion, how has m-learning evolved over time? Please answer the questions by circling the numbers. 1. It has not changed significantly 2. It has become more prevalent and widely accepted 3. It has improved in terms of functionality and accessibility 4. It has transformed the way students learn and engage with course materials 5. Other……
26	How familiar are you with the concept of m-learning? Please answer the questions by circling the numbers. 1. Yes 2. No

	3. May be
No.	**Section D: Perceptions of ICT and M-learning**
27	To what extent do you believe the use of ICT enhances teaching and learning activities? Please answer the questions by circling the numbers. 1. Not at all 2. To a small extent 3. To a moderate extent 4. To a great extent 5. To a very great extent
28	In your opinion, how does m-learning contribute to student engagement and motivation? Please answer the questions by circling the numbers. 1. It does not contribute significantly 2. It provides some level of engagement and motivation 3. It moderately enhances student engagement and motivation 4. It greatly enhances student engagement and motivation 5. It significantly transforms student engagement and motivation
29	Do you believe that the integration of m-learning should be further promoted in education settings? Please answer the questions by circling the numbers. 1. Yes 2. No 3. May be
30	How likely are you to recommend the use of m-learning to other educators/students? Please answer the questions by circling the numbers. 1. Not effective at all 2. Not effective 3. Neutral 4. Effective 5. Extremely effective
31	Overall, how positive is your perception of the use of ICT and m-learning in teaching and learning activities? Please answer the questions by circling the numbers.

	1. Very negative 2. Negative 3. Neutral 4. Positive 5. Very Positive
32	What are the primary benefits you associate with the use of ICT in teaching/learning activities? (Select all that apply) 1. Increased student engagement 2. Access to a wide range of information and resources 3. Enhanced collaboration and communication among students 4. Improved student motivation 5. Customization of learning experiences
33	Are there any challenges or limitations you perceive when using ICT in teaching/learning activities? (Select all that apply) 1. Technical issues or limitations 2. Lack of access to necessary ICT resources 3. Insufficient training or knowledge 4. Concerns about technology replacing traditional teaching methods 5. Other…….
No.	**Section E: Computer Training**
34	How did you learn to use a computer? 1. online learning or self-learning (eg. u tube video, CD) 2. computer training class online 3. computer training class in person 4. Other…….
35	Which computer courses did you learn? 1. Basic Computer Course (eg. Microsoft word, excel, PowerPoint) 2. Basic Computer Course (AutoCAD intermediate Course) 3. I Office Course (AutoCAD Advanced Course) 4. Advanced Excel Course 5. Adobe Photoshop Course 6. MYOB accounting software 7. Other…….

Section F: Exploring Students' Overall Perception, Attitude, and Satisfaction in the Use of ICT for Learning Activities

(1 = strongly disagree 2 = disagree 3 = neutral 4 = agree 5 = strongly agree)

36. Please rate the extent to which you agree or disagree with the following statements using a Likert scale (1-5), where 1 represents “Strongly Disagree” and 5 represents “Strongly agree”. Please answer the questions by ticking (√).

(A) Students' perceptions of the use of ICT in learning activities

	1	2	3	4	5
1. M-learning has the potential to enhance student learning outcomes.					
2. Integrating ICT and m-learning is essential for preparing students for the digital age.					
3. M-learning provides opportunities for personalized and self-directed learning.					
4. The use of technology in teaching and learning activities improves student engagement.					
5. Professional development programs should focus more on technology integration and m-learning.					

(B) Students' attitudes of the Use of ICT in learning activities

	1	2	3	4	5
1. Online resources complement my traditional classroom learning.					
2. ICT tools are essential for completing assignments and projects.					
3. Using technology in my studies improves my problem-solving skills.					

4. The use of ICT enhances my understanding of complex topics in my studies.					
5. Access to the internet is important for my academic success.					

(C) Students' Satisfaction of the Use of ICT in learning activities

	1	2	3	4	5
1. The availability of ICT resources improves my learning experience.					
2. Using technology tools such as computers, software, and online resources has positively impacted my academic performance.					
3. The availability of online resources supports self-directed learning.					
4. The ICT infrastructure (e.g., internet speed, availability of devices) in my educational institution meets my expectations.					
5. ICT tools help me access educational materials more conveniently.					

Thank you for your participation!

Note: The responds will be used only for study purpose and completely confidential.