Online ISSN: 3082-5121
Aloysian Interdisciplinary Journal of Social Sciences, Education, and Allied Fields
https://journals.aloysianpublications.com
Volume 2 Issue 6 (2026)

Information and Communication Technology (ICT) Instruction of Public Senior High School Teachers in Malasiqui, Pangasinan

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Publication Date: June 16, 2026 DOI: **10.5281/zenodo.20716975**

Abstract

The study attempted to determine the status of information and communication technology (ICT) instruction of Public Senior High School teachers in Malasiqui, Division of Pangasinan I during the school year 2024-2025 in terms of the availability of hardware and software technologies, level of technology competencies of teachers in the nine (9) domains of ICT including seriousness of problems encountered. The respondents consisted of the total enumeration of eighty-six (86) public senior high school teachers and twenty (20) school administrators covering twenty (20) public secondary schools in the municipality of Malasiqui, Pangasinan. Findings revealed that only computer, television and radio under hardware technologies and digitized learning resources under software overall level of technology competencies of teachers is described as high. Generally, this means that teachers have reached the desired level of technology competencies in the different domains of ICT. There are no significant differences between perceptions of teachers and their school administrators along their level of technology competencies. This indicates that the perceptions of the two (2) groups of respondents are on the same level. The most serious problems encountered by teachers are lack of funds in the provision of technology, lack of "know-how" in the use of the different technologies and lack of training in the preparation, maintenance and troubleshooting of equipment. In view of the above-stated findings, an action plan to improve the status of Information Technology Instruction in the municipality of Malasiqui, Pangasinan has been designed for meaningful adoption and proper implementation.

Keywords: *Classroom management, academic performance, learning behavior, public elementary schools, Rodriguez Rizal, conceptual model*

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Aloysian Interdisciplinary Journal of Social Sciences, Education, and Allied Fields
https://journals.aloysianpublications.com
Volume 2 Issue 6 (2026)

Chapter 1
THE PROBLEM

The transformation of information and communication technology (ICT) has been dubbed as trending era of step up and upgrades. This transformation has been driven in part by rapid technological innovation that people always to witness what is new and practical to use. Information and communication technology are integrated in the delivery of quality instructions to learners, this modern approach has changed the face of traditional instruction into more flexible and effective schemes. The Matatag curriculum of the Department of Education supports alongside the utilization of ICT to maximized interactive learning process. It is worthy to note the status of instructions along the domains in information and communication technology by the senior high school teachers in the public schools so that measures to improve quality instructions can be deliver to the fullest. In the past few years, especially, technology has made information, once a scarce resource, abundant. With computers and Internet technologies in particular, more people can now have access to move quickly than even before Terrado (2022). Moreover, the exponential growth in access to information has led to a corresponding exponential growth in the production of new information, and this has forced us to rethink our nations of what we need to learn and how we should learn it.

Educational institutions acknowledge that they must move apace with the technology-driven changes in society and economy. In today's knowledge society, schools must ensure that teachers and learners must possess the competencies to wield these new information and communication tools productively, they must equip them with the critical and analytic tools necessary to live and flourish in an information – saturated environment. Mastery of facts has become less important than the ability to contextualize these facts and derive their meaning within specific contexts.

Parallel to it, the demands of the modern society represent a unique opportunity for education systems. Schools that traditionally have taught students to store and recall information from specific content areas must now respond to the challenge of preparing young people for integration and success in societies and economics driven by the transformation of knowledge into new ideas and applications.

Classrooms must serve as places of collaboration and discovery where information and communication technologies (ICTs) can be integrated into the learning process. Technology can also be used to facilitate the acquisition of more general skills such as critical thinking, communication, and life-long learning. New technologies are tools that can be used to improve most areas of education.

Today's generation live in a word where technology is rapidly increasing, and new discoveries are made every day. Computers have become a common piece of equipment in homes all over the globe. The ability to operate a computer is necessary for entering into the job field. The majority of careers in today's society revolve around technology.

Computer technology in its various forms and manifestations has bade its increasing influence on education and is expected that the trend will speed up more rapidly. Some contributions of computer technology are: upgrading the quality of teaching – learning in schools, increasing the capability of the teachers to effectively inculcate learning and for students to gain mastery of lessons, broadening the delivery of education, and revolutionizing the use of technology to boost educational paradigm shifts that primarily give importance to student-

Online ISSN: 3082-5121
Aloysian Interdisciplinary Journal of Social Sciences, Education, and Allied Fields
https://journals.aloysianpublications.com
Volume 2 Issue 6 (2026)

centered and holistic learning (Lucido, 2022).

Computer skill literacy is defined as the knowledge and ability to utilize computers and related technology efficiently, with a range of skills covering levels from elementary use to programming and advanced problem solving. Computer literacy can also refer to the comfort level someone has with using computer programs and other applications that are associated with computers. Another valuable component understands how computers work and operate.

Computer literacy is considered to be a very important skill to possess in developed countries. Employers want their workers to have basic computer skills because their company becomes ever more dependent on computers. Many companies try to use computers to help run their company faster and cheaper.

Computers are just as common as pen and paper are for writing, especially among youth. There seems to be an inversely proportional relationship between computer literacy and compositional literacy among first world computer users. For many applications – especially communicating – computers are preferred over pen, paper, and typewriters because of their ability to duplicate and retain information and ease of editing.

As personal computers become common – place and they become more powerful, the concept of computer literacy is moving beyond basic functionality to more powerful applications under the heading of multimedia literacy.

It is frequently assumed that as computer and Internet access become common – place in the first world, everyone in those countries must have equal and ready access to this technology, and to skills in how to effectively use it. There is, however, a significant digital divide in even the most technologically advanced and enabled countries, with digital haves and have–nots. Older workers who do not use the internet at home and are computer illiterate may be frozen out of the job market even for relatively unskilled jobs such as clerking in an auto parts store.

Troubleshooting

Troubleshooting is the process of diagnosing the source of a problem. It is used to fix problems with hardware, software, and many other products. The basic theory of troubleshooting is that you start with the most general (and often most obvious) possible problems, and then narrow it down to more specific issues.

Many product manuals have a “Troubleshooting” section in the back of the manual. This section contains a list of potential problems, which are often phrased in the form of a question. For example, if your computer’s monitor is not producing an image, you may be asked to answer the following troubleshooting questions:

1. Is the monitor plugged in to a power source?
2. Is the monitor turned on?
3. Is the monitor cable plugged into the computer?
4. Is the computer turned on?
5. Is the computer awake from sleep mode?

If the answers to all the above question are Yes, there may be some additional questions such as:

1. Does your computer have a supporting video card?
2. Have you installed the necessary video card drivers?
3. Is the monitor resolution set properly?

Typically, each of these questions will be followed by specific advise, whether the

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Volume 2 Issue 6 (2026)

answer is Yes or No. sometimes, this advice is presented as a flowchart diagram. This means each question is followed by a series of other questions, depending on the answer. However, in many cases, only single solutions are provided for each question.

Troubleshooting is something we all have to do at some point, though some of us have to troubleshoot product problems more often than others. The good news is that, the more you do it, the more you learn and the better you get at fixing problems. Since many products have similar troubleshooting steps, you may find that after awhile, you don't even need the manual to find solutions to the problems you encounter.

Word Processing

Using a computer to create, edit, and print documents. Of all computer applications, word processing is the most common. To perform word processing, you need a computer, a special program called a *word processor,* and a printer. A word processor enables you to create a document, store it electronically on a disk, display it on a screen, modify it by entering commands and characters from the keyboard, and print it on a printer. *Recommended Reading: SOHO Business Solutions: Office Productivity Software.*

Word Processing Compared to Using a Typewriter

The great advantage of word processing over using a typewriter is that you can make changes without retyping the entire document. If you make a typing mistake, you simply back up the cursor and correct your mistake. If you want to delete a paragraph, you simply remove it, without leaving a trace. It is equally easy to insert a word, sentence, or paragraph in the middle of a document. Word processors also make it easy to move sections of text from one place to another within a document, or between documents. When you have made all the changes you want, you can send the file to a printer to get a hard copy. Word processing is writing, editing, and production of documents, as letters, reports, and books, through the use of computer program or a complete computer system designed to facilitate rapid and efficient manipulation of text. It is the composition of documents using a computer system to input, edit, store, and print them.

Spreadsheets

A spreadsheet is an interactive computer application program for organization and analysis of data in tabular form. Spreadsheets developed as computerized simulations of paper accounting worksheets. The program operates on data represented as cells of an array, organized in rows and columns. Each cell of the array is a model-view-controller element that can contain either numeric or text data, or the results of formulates that automatically calculate and display a value based on the contents of other cells.

The user of the spreadsheet can make changes in any stored value and observe the effects on calculated values. This makes the spreadsheet useful for "what-if" analysis since many cases can be rapidly investigated without tedious manual recalculation. Modern spreadsheet software can have multiple interacting sheets, and can display data either as text and numerals, or in graphical form.

In addition to the fundamental operations of arithmetic and mathematical functions, modern spreadsheets provide built-in functions for common financial and statistical operations. Such calculations as net present value or standard deviation can be applied to tabular data with a pre-programmed function in a formula. Spreadsheet programs also provide conditional

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expressions, functions to convert between text and numbers, and functions that operate on strings of text.

Spreadsheets have now replaced paper-based systems throughout the business world. Although they were first developed for accounting or bookkeeping tasks, they now are used extensively in any context where tabular lists are built, sorted and shared.

VisiCalc was the first electronic spreadsheet on a microcomputer, and it helped turn the Apple II computer into a popular and widely used system. Lotus 1-2-3 was the leading spreadsheet when DOS was the dominant operating system. Excel now has the largest market share on the Windows and Macintosh platforms. A spreadsheet program is a standard feature of an office productivity suite; since the advent of web apps, office suites now also exist in web app form.

A modern spreadsheet file consists of multiple **worksheets** (usually called by the shorter name **sheets)** that make up one **workbook**, with each file being one workbook. A cell on one sheet is capable of referencing cells on other, different sheets, whether within the same workbook or even, in some cases, in different workbooks.

Spreadsheets share many principles and traits of databases, but spreadsheets and databases are not the same thing. A spreadsheet is essentially just one table, whereas a database is a collection of many tables with machine-readable semantic relationships between them. While it is true that a workbook that contains three sheets is indeed a file containing multiple tables that can interact with each other, it lacks the relational structure of a database. Spreadsheets and databases are interoperable – sheets can be imported into databases to become tables within them, and database queries can be exported into spreadsheets for further analysis.

A spreadsheet program is one of the main components of an office productivity suite, which usually also contains word processor, a presentation program, and a database management system. Programs within a suite use similar commands for similar functions. Usually sharing data between the components is easier than with a non-integrated collection of functionally equivalent programs. This was particularly an advantage at a time when many personal computer systems used text-mode displays and commands, instead of a graphical user interface.

The word “spreadsheet” came from “spread” in its sense of a newspaper or magazine item (text and/or graphics) that covers two facing pages, extending across the center fold and treating the two pages as one large one. The compound word “spread-sheet” came to mean the format used to present book-keeping ledgers – with columns for categories of expenditures across the top, invoices listed down the left margin, and the amount of each payment in the cell where its row and column intersect – which were, traditionally, a “spread” across facing pages of a bound ledger (book for keeping accounting records) or on oversized sheets of paper (termed “analysis paper”) ruled into rows and columns in that format and approximately twice as wide as ordinary paper.

Early implementations

Batch spreadsheet report generator

A batch “spreadsheet” is indistinguishable from a batch compiler with added input data, producing an output report, *i.e.,* a 4GL or conventional, non-interactive, batch computer program. However, this concept of an electronic spreadsheet was outlined in the 1961 paper “Budgeting Models and System Simulation” by Richard Mattessich. The subsequent work by Mattessich (1964a), Chpt. 9, *Accounting and Analytical Methods*) and its companion volume, Mattessich

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(1964b, *Simulation of the Firm through a Budget Computer Program*) applied computerized spreadsheets to accounting and budgeting systems (on mainframe computers programmed in FORTRAN IV). These batch Spreadsheets dealt primarily with the addition or subtraction of entire columns or rows (of input variables), rather than individual cells.

In 1962 this concept of the spreadsheet, called BCL for Business Computer Language, was implemented on an IBM 1130 and in 1963 was ported to an IBM 7040 by R. Brian Walsh at Marquette University, Wisconsin. This program was written in Fortran. Primitive timesharing was available on those machines. In 1968 BCL was ported by Walsh to the IBM 160/67 timesharing machine at Washington State University. It was used to assist in the teaching of finance to business students. Students were able to take information prepared by the professor and manipulate it to represent it and show ratios etc. in 1964, a book entitled *Business Computer Language* written by Kimball, Stoffells and Walsh and both the book and program were copyrighted in 1966 and years later that copyright was renewed.

Database

A **database** is an organized collection of data. The data are typically organized to model relevant aspects of reality in a way that supports processes requiring this information. For example, modeling the availability of rooms in hotels in a way that supports finding a hotel with vacancies.

Database management system (DBMSs) are specially designed software applications that interact with the user, other applications, and the database itself to capture and analyze data. A general-purpose DBMS is a software system designed to allow the definition, creation, querying, update, and administration of databases. Well-known DBMSs include MySQL, MariaDB, PostgreSQL, SQLite, Microsoft SQL Server, Oracle, SAP, dBASE, FoxPro, IBM DB2, LibreOffice Base and FileMaker Pro. A database is not generally portable across different DBMS, but different DBMSs can interoperate by using standards such as SQL and ODBC or JDBC to allow a single application to work with more than one database.

Formally, "database" refers to the data themselves and supporting data structures. Databases are created to operate large quantities of information by inputting, storing, retrieving, and managing that information. Databases are set up so that one set of software programs provides all users with access to all the data.

A "database management system" (DBMS) is a suite of computer software providing the interface between users and a database or databases. Because they are so closely related, the terms "database" when used causally often refers to both a DBMS and the data it manipulates.

Outside the world of professional information technology, the term *database* is sometimes used causally to refer to any collection of data (perhaps a spreadsheet, maybe even a card index). This article is concerned only with databases where the size and usage requirements necessitate use of a database management system.

The interactions catered for by most existing DBMS fall into four main groups:

- **Data definition –** Defining new data structures for a database, removing data structures from the database, modifying the structure of existing data.
- **Update –** inserting, modifying, and deleting data.
- **Retrieval –** Obtaining information either for end – user queries and reports or for

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processing by applications.

- **Administration** – Registering and monitoring users, enforcing data security, monitoring performance, maintaining data integrity, dealing with concurrency control, and recovering information if the system fails.

A DBMS is responsible for maintaining the integrity and security of stored data, and for recovering information if the system fails.

Both a database and its DBMS conform to the principles of a particular database model. "Database system" refers collectively to the database model, database management system, and database.

Physically, database servers are dedicated computers that hold the actual databases and run only the DBMS and related software. Database servers are usually multiprocessor computers, with generous memory and RAID disk arrays used for stable storage. RAID is used for recovery of data if any of the disks fail. Hardware database accelerators, connected to one or more servers via a high-speed channel, are also used in large volume transaction processing environments. DBMSs are found at the heart of most database applications. DBMSs are found at the heart of most database applications. DBMSs may be built around a custom multitasking kernel with built-in networking support, but modern DBMSs typically rely on a standard operating system to provide these functions. Since DBMSs comprise a significant economical market, computer and storage vendors often take into account DBMS requirements in their own development plans.

Databases and DBMSs can be categorized according to the database model(s) that they support (such as relational or XML), the type(s) of computer they run on (from a server cluster to a mobile phone), the query language(s) used to access the database (such as SQL or XQuery), and their internal engineering, which affects performance, scalability, resilience, and security.

Networking

A **computer network** or **data network** is a telecommunications network that allows computers to exchange data. In computer networks, networked computing devices pass data to each other along data connections. The connections (network links) between nodes are established using either cable media or wireless media. The best-known computer network is the Internet.

Network computer devices that originate, route and terminate the data are called network nodes. Nodes can include hosts such as servers and personal computers, as well as networking hardware. Two devices are said to be networked when a device is able to exchange information with another device.

Computer networks support applications such as access to the World Wide Web, shared use of application and storage servers, printers, and fax machines, and use of email and instant messaging applications. Computer networks differ in the physical media used to transmit their signals, the communications protocols to organize network traffic, the network's size, topology and organizational intent.

Today, computer networks are the core of modern communication. All modern aspects of the public switched telephone network (PSTN) are computer-controlled. Telephony increasingly runs over the Internet Protocol, although not necessarily the public Internet. The scope of communication has increased significantly in the past decade. This boom in communications would not have been possible without the progressively advancing computer network. Computer networks, and the technologies that make communication between networked computers

Online ISSN: 3082-5121
Aloysian Interdisciplinary Journal of Social Sciences, Education, and Allied Fields
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possible, continue to drive computer hardware, software, and peripherals industries. The expansion of related industries is mirrored by growth in the numbers and types of people using networks, from the researcher to the home user.

Computer networking may be considered a branch of electrical engineering, telecommunications, computer science, information technology or computer engineering, since it relies upon the theoretical and practical application of the related discipline.

A computer network has the following properties: **Facilitates interpersonal communications.** People can communicate efficiently and easily via email, instant messaging, chat rooms, telephone, video telephone calls, and video conferencing. **Allows sharing of files, data, and other types of information.** Authorized users may access information stored on other computers on the network. Providing access to information on shared storage devices is an important feature of many networks. **Allows sharing of network and computing resources.** Users may access and use resources provided by devices on the network, such as printing a document on a shared network to accomplish tasks. **May be insecure.** A computer network may be used by computer Hackers to deploy computer viruses or computer worms on devices connected to the network, or to prevent these devices from accessing the network.

Telecommunication

Telecommunication is communication at a distance by technological means, particularly through electrical signals or electromagnetic waves. Due to the many different technologies involved, the word is often used in a plural form, as **telecommunications.**

Early telecommunication technologies included visual signals, such as beacons, smoke signals, semaphore telegraphs, signal flags, and optical heliographs. Other examples of pre-modern telecommunications include audio messages such as coded drumbeats, lung-blown horns, and loud whistles. Electrical and electromagnetic telecommunication technologies include telegraph, telephone, and teleprinter, networks, broadcast, microwave transmission, fiber optics, communications satellites and the Internet.

A revolution in wireless telecommunications began in the 1900s with pioneering developments in broadcast communications by Guglielmo Marconi. Marconi won the Nobel Prize in Physics in 1909 for his efforts. Other highly notable pioneering investors and developers in the field of electrical and electronic telecommunications include Charles Wheatstone and Samuel Morse (telegraph), Alexander Graham Bell (telephone), Edwin Armstrong, and Lee de Forest (broadcast), as well as John Logie Baird and Philo Farnsworth (television).

The world's effective capacity to exchange information through two-way telecommunication networks grew from 281 petabytes of (optimally compressed) exabytes in 2022, and to 65 (optimally compressed) exabytes in 2019. This is the informational equivalent of two newspaper pages per person per day in 1986, and six entire newspaper per person per day by 2019. Given this growth, telecommunications play an increasingly important role in the world economy and the global telecommunications industry was about a $4.7 trillion sector in 2023. The service revenue of the global telecommunications industry was estimated to be $1.5 trillion in 2022m corresponding to 2.4% of the world's gross domestic product (GDP).

Media Communication

The **mass media** are diversified media technologies that are intended to reach a large audience by mass communication. The technologies through which this communication takes

Online ISSN: 3082-5121
Aloysian Interdisciplinary Journal of Social Sciences, Education, and Allied Fields
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place varies. Broadcast media such as broadcast, recorded music, film and television transmit their information electronically. Print media use a physical object such as a newspaper, book, pamphlet or comics, to distribute their information. Outdoor media is a form of mass media that comprises billboards, signs or placards placed inside and outside of commercial buildings, sports stadiums, shops and buses. Other outdoor media include flying billboards (signs in tow of airplanes), blimps, and skywriting. Public speaking and event organizing can also be considered as forms of mass media. The digital media comprises both Internet and mobile mass communication. Internet media provides many mass media services, such as email, websites, blogs, and internet based broadcast and television. Many other mass media outlets have a presence on the web, by such things as having TV ads that link to a website, or distributing a QR Code in print or outdoor media to direct a mobile user to a website. In this way, they can utilize the easy accessibility that the Internet has, and the outreach that Internet affords, as information can easily be broadcast to many different regions of the world simultaneously and cost-efficiently. The organizations that control these technologies, such as television stations or publishing companies, are also known as the mass media.

In the late 20th Century, mass media could be classified into eight mass media industries: books, newspapers, magazines, recordings, broadcast, movies, television and the internet. With the explosion of digital communication technology in the late 20th and early 21st centuries, the question of what forms of media should be classified as "mass media" has become more prominent. For example, it is controversial whether to include cell phones, video games and computer games (such as MMORPGs) in the definition. In the 2022s, a classified called the "seven mass media" became popular. In order of instruction, they are:

1. Print (books, pamphlets, newspaper, magazines, etc.) from the late 15th century.
2. Recording (gramophone records, magnetic tapes, cassettes, cartridges, CDs, DVDs) from the late 19th century
3. Cinema from about 1900
4. Broadcast from about 1910
5. Television from about 1950
6. Internet from about 1990
7. Mobile phones from about 2022

Each mass media has its own content types, its own creative artists and technicians, and its own business models. For example, the Internet includes web sites, blogs, podcasts, and various other technologies built on top of the general distribution network. The sixth and seventh media, internet and mobile, are often call collectively as digital media; and the fourth and fifth, broadcast and TV, as broadcast media. Some argue that video games have developed into a distinct mass form of media.

While a telephone is a two-way communication device, mass media refers to medium which can communicate a message to a large group, often simultaneously. However, modern cell phones are no longer a single use device. Most cell phones are equipped with internet access and capable of connecting to the web which itself is a mass medium. A question arises of whether this makes call phones a mass medium or simply a device used to access the social media through the internet or wifi access. There is currently a system where marketers and advertisers are able to tap into satellites, and broadcast commercials and advertisements directly to cell phones, unsolicited by the phone's user. This transmission of mass advertising to millions of people is a form of mass communication.

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Video games may also be evolving into a mass medium. Video games convey the same message and ideologies to all their users. Users sometimes share the experience with each other by playing online. Excluding the internet however, it is questionable whether players of video games are sharing a common experience when they play the game separately. It is possible to discuss in great detail the event of a video game with a friend you have never played with because the experience was identical to your both. The question is if this is then a form of mass communication.

Massively multiplayer online role-playing games (MMORPGs) such as Runescape provide a common gaming experience to millions of users throughout the globe. It is arguable that the users are receiving the same message, i.e., the game is mass communicating the same message to the various players.

Availability of Hardware and Software Technologies

In this book, Oversold and Underused: Computers in the Classroom, Larry Cuban (2020) lamented that the overwhelming majority of teachers used information technology (IT) to sustain existing patterns of education, rather than to innovate. When innovations of any kind are introduced to educators, most teachers adapt them to fit their customary teacher – centered practices.

In an article written by Neil, (2021) pointed out that most teachers who use technologies do to develop students' computer – specific skills such as word processing. The development of higher – ordered mathematical, problem – solving or reasoning skills are rare. Rather than revolutionizing education, these innovations perpetuate traditional teaching methods. Thus, the educational reforms that businessmen, educators, public officials and parents seek are unachieved. Increased productivity, higher student achievement, and the transformation of learning remain unrealized. In Cuban's view, the billions of dollars invested in IT have yet to produce commensurate outcomes. He found out that sixty-one percent of teachers assigned students word processing or spreadsheet work, while 50% of teachers gave problem solving and data analysis assignments.

Becker, (2021) conducted a study and found out that 71% of American teachers assigned computer work to students at least occasionally. Only one – third did so on a regular basis. Elementary teachers and teachers of English, computers, business, and vocational classes were more likely to use computers on a regular basis than teachers of other subjects. The researchers found that, although skill practice using computers was on the decline, elementary teachers still used computers for drills. They found that 50% of teachers surveyed had their students used word processing, 36% used GOOGLE DRIVES reference software, and 30% required their students to use the Internet.

In the study of Jose (2022) reported that schools had from 25 to 32 IBM PC XTs or IBM compatible-machines without hard disks. Neither the quality nor the quantity of computers was satisfactory, given the average of 60 students per class. Thirty percent of those surveyed had no instructional software, despite the Korean government's support for the development and distribution of instructional programs. Elementary schools tended to have more software than secondary or tertiary level schools. About one-half of those surveyed identified computer literacy (teaching about computers) as the most important educational goal. Finally, the lack of teacher training was the primarily hindrance to the instructional use of computers.

Andrada and Abcede, (2021) stated that private school students generally begin using

Online ISSN: 3082-5121
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computers in the second grade. They learning about the history, parts, and functions of the computers, the move on to keyboarding, simple word processing, and file management. By the high school level. They become proficient in using office productivity tools. In some cases, they learn to develop web sites development. The authors admit, though, that there is still limited application of ICT's in other learning areas. ICT s are used as openers or motivators, to collect information from web sites, or as productivity tools to produce reports and other outputs. ICTs are supplementary to instruction, rather than an integrated part of it.

Romano, (2021) stated that Information Communication Technology presented a challenge administrators and teachers because they were forced to incorporate this definition of a classroom. Further, teachers have been willing to embrace the increasingly new advances in technology and adopt them into the curriculum in order to expand students learning experiences.

As Beichner (2021) pointed out that the key to bringing the gap between teachers and technology is to redefine the role of the teacher. "As computers begin to provide students with access to vast amounts of information and powerful new ways to explore it, teachers become not so much authorities as guides. Giving up the traditional role as "the fount of knowledge" might be threatening to some teachers, coupled with the fact that some students will inevitably know more about computers than their teachers". Even though students are capable of learning from technology without the aid of the teacher, in particularly through the use of subject – specific computer software, does not mean that the human element required by education will be broken. Students will always need encouragement and reinforcement to achieve to their potential. "Strategies for change in what happens in the classroom must be based on the truth human beings have always been conditioned to learn under the guidance of other humans.

Keirn, (2022) concluded that after taking a college course to improve their computer competency, teachers became more confident in their computer skills and learned more about the advantages of using the computer for educational purposes. These conclusions have been reached in a number of case studies, supporting the conclusions that teachers are open to the use of technology, but they are looking for guidance. Even though self – instruction has worked for some teachers, we cannot reasonably expect all new teachers to become computer literate on their own. If teachers are to take full advantage of technology, and be aware of its limitations, they need to begin learning about technology during their pre-service coursework".

Although the problems that teachers face when implementing technology can be partially solved by educating them in the uses of technology, it is futile unless they know how to bring technology to their students.

Luehrmann, (2020) stated that the most important thing a school can do with a computer is to teach students to become literate users of the computer, not just recipients of computerized lessons. There are two key ways that students are exposed to technology: Software includes subject – specific software, such as remedial math software and others. Further, students have access to word processing and presentation software.

Wilkinson, (2021) in his book "Classroom Computers and Cognitive Science" emphasized that the closest that students come to interacting with technology on a fundamental level is through computer science. Computer science allows students to create programs, essentially their own software, giving them a different view of the capabilities of computers. "Learning to program a computer to perform user defined tasks frequently involves several learning experiences that are not otherwise attainable. By wiring computer programs children develop a familiarity with the computer learning environment that they do not get from working

Online ISSN: 3082-5121
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with a prepared software program". As technology continues to develop, educators and students need to discover how to use all aspects of it is in the educational settings.

Greig, (2023) stated that if ICT is being used effecting, it enables data driven decision making. It minimizes the guesswork, opinion, and emotions in the decision – making process, the replaces these with quantifiable proof. It also enables educators and decision makers to gain informed and thoughtful perspective of current situations, options, and considerations before formulating plans of action.

As the Commission of Information and Communication Technology (2023) disclosed that effective use of ICTs in education planning and management presupposes that education administrators and non-teaching staff are skills ICT users. At the minimum, they should be able to use a computer to create and process documents, perform computations, communicate, and make presentations, following norms for acceptable use. Furthermore, education administrators and non-teaching staff need specialized competencies that enable them to use ICT hardware and software optimally in fulfillment of their job functions.

As pointed out by Carlson and Gadio (2022) teachers and instructional managers have an important role in ensuring that the use of ICTs results in effective learning. "Educational Technology is not, and never will be, transformative on its own-it requires teachers who can integrate technology into the curriculum and use it to improve students learning, teachers are the key to whether technology is use appropriately and effectively".

Likewise, according to them effective teaching in ICT-enhanced learning environments requires teachers and instructional managers to develop not only ICT skills but also appropriate pedagogical competencies, such as skills in asking meaningful questions and in "interpreting information by integrating it with previously accumulated knowledge and giving it, an appropriate context". They must have the ability to develop higher-order thinking, information-reasoning skills, and collaborative learning skills "which are increasingly required in today's knowledge economy". It also requires teachers and instructional managers to be more learner-centered, "interdisciplinary…. and adaptive to individual learning styles".

Cerezo, (2022) stated that the main purpose of using ICT materials is to make abstract ideas and concepts better understood if they are represented by concrete objects if possible. As used here, a term is abstract it is concrete form has not been seen yet. Take for instance, the word carabao, to the city children who have not seen any carabao yet, the term carabao is very abstract to them. No matter how much the carabao is describe the typical picture of that farm animal, they can form a definite picture of what is carabao is. But once they have seen the figure of the carabao itself, they understand what is carabao is even without any description.

There are terms that cannot be represented by concrete objects such as principles, spirit, and the like although principles in science and technology can be demonstrated by using tangible objects and instruments. Ideas and concepts that cannot be represented by concrete objects may be explained in terms that are better understood or by their manifestations.

Sindayen, (2022) pointed out that ICT technologies can be utilized in presenting a new lesson or topic. A display of colored popular photographs on the bulletin board will surely catch class' attention. Samples of common real objects can easily involve them in a lesson, presenting events and landscapes can be brought to the classroom through appropriate media like television viewing or constructing diorama, individualized instruction according to the student's learning styles, take off prints for planned learning activities such as videotapes, recorder, transparencies and projectors. There are stored and are made available.

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As Lucido, (2021) stated some instructional technologies which can contribute effectively to instruction. Among them are: broadcast, phonograph, tape recorder, telephone, slide, film strips, opaque projector, overhead projector, calculator, computer, internet, motion picture, and television.

Morison, (2022) stated that when teacher – centered classrooms use software, they often use drill and practice activities. Drill and practice software afford rote memorization and a behaviorist to teaching and learning thus maintaining the status quo. Students may learn from this technology as it displaces the teacher or acts as a teaching aid. However, students continue to be passive receivers of information as the model persists. Learning from computers supports a traditional, didactic model of education whereas learning with computers represents a shift in the learning continuum.

Nero, (2020) pointed out that teachers' use of instructional technology seems to be shifting away from a didactic model towards a more hands-on approach for their students. Although there as various educational implication for each model has for integrating technology in the secondary classrooms as "technologies haves the potential to fundamentally change the way we think about teaching and learning".

Hall and Higgins, (2021) disclosed that in teacher-centered classrooms, it is often the teacher, not the student who uses technological tools.

Furthermore, teachers in these classrooms often use technology to deliver instruction or for demonstration purpose. For example, when teachers present a PowerPoint slideshow or use an interactive whiteboard as a demonstration tool, students are not interacting with technology but are merely observers of technology use. The use of a newer technology may capture students' interests, but the structure of the lesson and its delivery remains the same. When technology is used to deliver instruction, 21st century skills are not required and the context is less authentic and focused more on retention of act or procedural knowledge.

Macatangay, (2019) conducted a study on Educational Technology in the Teacher Education Program of Philippine Schools. Her findings revealed that teacher respondents encountered problems on lack of training in the utilization of instructional technologies and absence of educational media centers in school.

Escalante, (2023) conducted a study on the Assessment of the Educational media Materials. His findings revealed that there were insufficient quantities of visual aids in the district of Allacapon Cagayan. He further disclosed that the visual aids contributed a lot to improve classroom instruction.

Laureano, (2019) investigated Educational Media in Selected Teacher Training Institution in the Philippines. She found out that educational media materials and equipment used more frequently belonged to the traditional types of instructional technologies. Never types of instructional were utilized only by the teacher – training institutions found in the greater Manila area and the more progressive nearby provinces.

Blondin, (2021) conducted a study to determine some of the Deterrents in the utilization of Educational Media. She disclosed the following problems along level of adequacy and extent of utilization of instructional technologies: (1) financial difficulties (2) untrained teachers (3) inadequacy of instructional equipment and (4) indifference of supervisor toward the use of instructional technologies.

Terrado, (2022) conducted a survey of ICT Utilization in Philippine Public High Schools. His survey revealed the following: 52% of the respondents said that at most, only half of their

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teachers have some knowledge of computer fundamentals and can use productivity tools. In 13% of the schools, 10% or less of the teachers have basic computer skills. In almost a third of the school (29%) at least 75% of the teaching staff is computer literate, and the number of teachers with internet skills (e.g. ability to use email and do research online is much lower) 75% of the school reported that only up to 10% of their teachers have the Internet Skills for teaching-related activities.

Magalong, (2020) pointed out that the accountability of teachers in integrating ICT in the school curriculum must be greatly considered so that effectiveness and efficiency could be ensured.

Reyes, (2021) conducted a study on Information Technology Usage in Metro Manila Public and Private Schools. Her findings revealed that Metro Manila Primary School students have low access in computers. Private primary schools are better equipped than public primary schools. Other findings revealed that the most serious problems encountered are lack of funds and lack of know-how.

Summing up, the related literature and studies herein revealed several ideas/concepts relevant to the present study. Worth mentioning the written and publish articles and researches of the individuals above stressed more on the preparation and proper utilization of coherent, relevant and appropriate instructional materials as tools to enhance students' conceptualization of lessons for wider parameter of understanding. Likewise, they also revealed some common problems encountered by the teacher respondents in the extent of utilization of the said instructional technologies like insufficient funding, lack of adequate training, lack of audio-visual equipment, poor quality and others including survey on ICT utilization by the teachers. All the above-mentioned literature and studies are more or less related to the present study on Information and Communication Technology. Along this context, there are nine (9) domains of ICT to improve the technology competencies of teachers which are as follows namely: Basic Computer Operation skill which refers to the knowledge and ability to utilize computer and related technology efficiently. Set Up,

Maintenance and Troubleshooting refers to the process of diagnosing a source of problem. It is used to fix problems with hardware, software and many other products. Word Processing, refers to writing, editing and production program or a computer system designed to facilitate rapid and efficient manipulation of text. Spreadsheet refers to an interactive computer application program for organization an analysis of data in tabular form. (Howard, 2020).

This domain of ICT is responsible for the reproduction of tables hence, it is efficacies. Database refers to an organized collection of data or refers to data themselves and supporting data structures. This means that data are to be typically organized to model relevant aspects of reality in a way that supports processes requiring information. Networking refers to construction, design and use of a network. This means that this domain ICT primarily concerns about the establishment of policies and procedures related to the network. Telecommunication refers to the communication at a distance by technological means particularly through electrical signals electromagnetic waves. Media Communication refers to the means of interchanging or transmitting and receiving information and Social, Legal and Ethical Issues which refer to issues concerning how computer have affected the way society is organized and how people react and behave towards each other. This means that this domain may contribute to the manner on how people use or utilize computer properly.

This is the main reason why the researcher has chosen this study. She wanted to

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determine the status of technology instruction of the teachers particularly along the domains of ICT particularly in Malasiqui, Pangasinan, Division I of Pangasinan during the school year 2024-2025.

Theoretical Framework

The study was premised on the theory of Symbolic Interactionism, this is anchored on the major premises, namely: (a) individuals act toward things and people on the basis of the meanings that things have for them; (b) the meaning of such things are derived from, or arise out of the social interaction that individuals have with one another, and (c) these meanings are handled in, modified through, an interpretive process used by individual to deal with the things and other people they encounter. The symbolic interactionism perspective views the individual as a social product who is influenced by others but also maintains distance from other and is able to initiate individual action. Thus, this theory can contribute to increase the teachers' level of technology competencies on the basis of social interaction.

On the other hand, this theory of constructivist learning can be used to support the technology competencies of teachers.

Powell and Kalina (2022) believed that the need to construct one's own knowledge would immediately understand materials being taught to them thereby attaining high level of analysis and in-depth understanding in every aspect of learning endeavor. In other words, it is a manner of discovering and transforming complex information, checking against old rules or methods and revising rules/methods when they no longer work. There should be an active monitoring and consequent regulation and orchestration of one's cognitive process. Thus, it allows teachers to look at material from different perspectives and obtain complete understanding. By using technology, teachers can see materials from different angles and create their own knowledge and understanding of the material.

Another theory which supports the research study along Mathematics is the discovery learning theory by Bruner (1981) where focus is to see connections among concepts, pose a question and let student try to find the answer. It also encourages learner to make intuitive guesses. This theory is very useful because teachers are given opportunities to explore and discover the different processes involved thereby increasing their level of ICT competencies along the identified nine (9) domains.

Conceptual Framework

A schematic presentation of the study is illustrated in input-process-output (IPO) model. The input consisted of the availability of hardware and software technologies of teachers and the level of technology competencies in the different domains of ICT and the degree of seriousness of problems encountered by teachers.

The process consisted of an analysis of the findings in different inputs and the process using relevant methods of research and statistical tool lead to the formulation of proposed measures to address findings in the above stated areas.

Finally, the output which is the proposed action plan primarily to enhance the Information Communication Technology instruction of teachers in the different domains of ICT.

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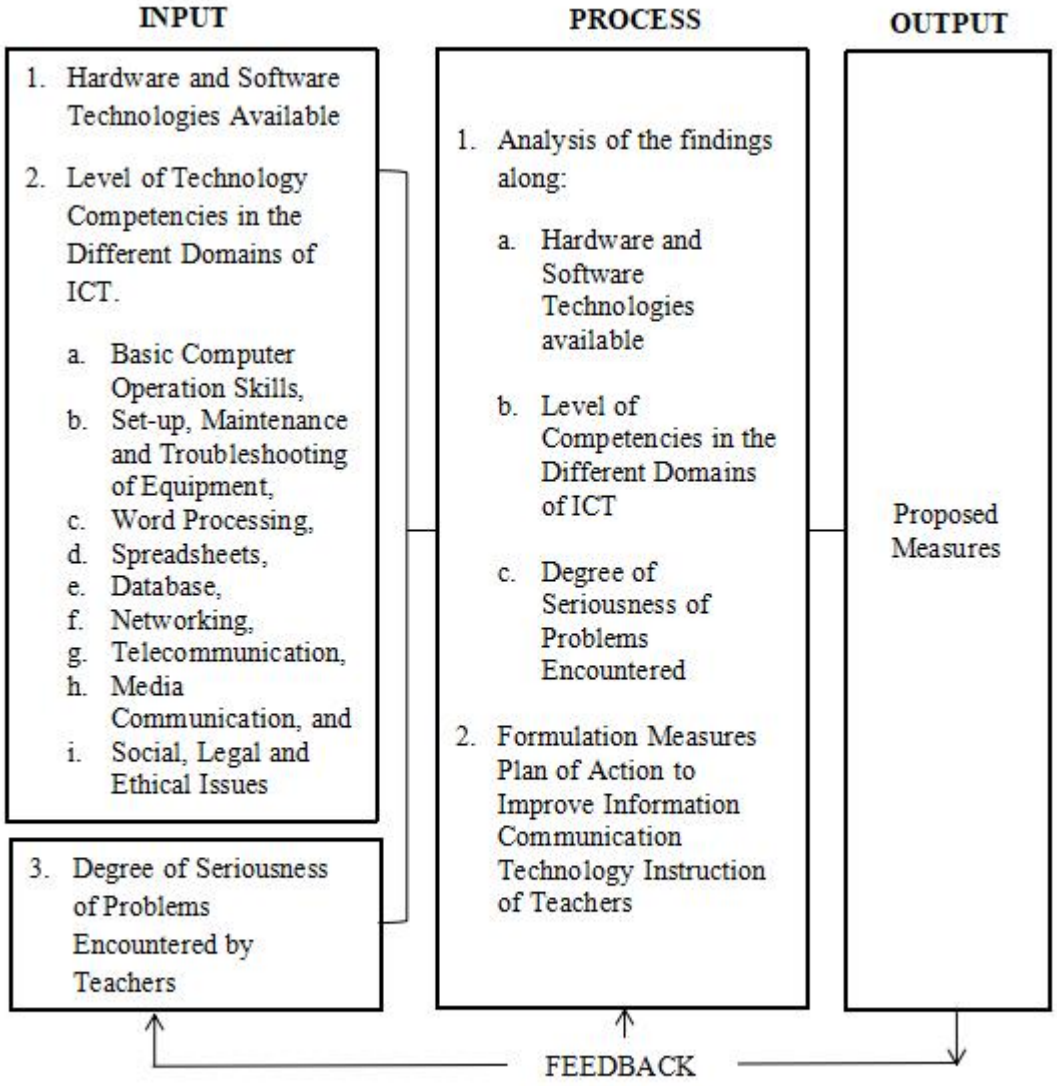

Paradigm of the Study

Statement of the Problem

This study aimed to determine the status of Information and Communication Technology (ICT) Instruction of Public Senior High School Teachers of Malasiqui, Division of Pangasinan I during the School Year 2024-2025.

Specifically, this study sought answers to the following questions:

1. What is the level of availability of the hardware and software technologies in ICT instruction?
2. What is the level of technology competencies of teachers along the following nine (9) domains of ICT?
   a. Basic Computer Operation Skills,
   b. Setup, Maintenance and Troubleshooting of Equipment,
   c. Word Processing,

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d. Spreadsheets,
e. Database,
f. Networking,
g. Telecommunication,
h. Media Communication, and
i. Social, Legal and Ethical Issues?

3. Is there a significant difference between perceptions of teachers themselves and their school administrators along their level of ICT competencies?

4. What is the degree of seriousness of problems encountered by teachers in their technology competencies?

5. What measures can be proposed to enhance the different domains of ICT?

Research Hypothesis

The study tested the null hypothesis at the .05 level of significance.

1. There are no significant differences between perceptions of teachers themselves and other school administrators in their level of competencies in the different of ICT?

Scope and Delimitation of the Study

The study primarily focused on the status of Information Communication Technology Instruction of Public Senior High School Teachers in Malasiqui, Pangasinan during the school year 2024-2025. Respondent of the study consisted of total enumeration of eighty-six (86) public senior high school teachers and twenty (20) school administrators among the twenty (20) public secondary schools.

Significance of the Study

The study is envisioned to benefit the following clientele groups:

Curriculum Planners. The findings of this study would provide information as to the kinds of instructional technologies extensively used by the public senior high school teachers as a part of their planning.

School Administrators. The findings of this study would provide insights on the research-based information of in-service training to be provided likewise, the real estimates of how the schools have been provided to enhance the ICT competencies and skills of their teachers for instructional purposes.

ICT Teachers. The findings of this study would provide research – based information that enhances their level of ICT competencies in the different domains.

Students. They would benefit from all the improvements which would be initiated and implemented by the school administrators and the public secondary school teachers as a result of their awareness on ICT instruction.

Researcher. The findings of this study would provide meaningful experiences and insights in the gathering and organizing of data as well as for the improvement of teaching-learning manifestations.

Other Researchers. They could use the findings of this study for the conduct and interpretation of related researches.

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Definition of Terms

In order to present a more thorough and comprehensive insight into this study, the following terms and phrases are lexically and/or operationally defined.

Basic Computer Operation Skill. It refers to the knowledge and ability to utilize computers and related technology efficiently (Courant, 2002).

Competence. It refers to the quality or state of being functionally adequate or of having sufficient knowledge, judgment, skill or strength for a particular discipline (Webster, 1956). In this study, it refers to the technology competencies of teachers in the nine domains of UCT, namely; Basic Computer Operation Skills, Setup, Maintenance and Troubleshooting of Equipment, Word Processing, Spreadsheets, Database, Networking, Telecommunication, Media Communication and Social, Legal and Ethical Issues.

Database. It refers to an organized collection of data or it refers to data themselves and supporting data structures. Data are typically organized to model relevant aspects of reality in a way that supports processes requiring information (Davies, 2021).

Hardware Technologies. They refer to audio visual aids which consist of digital or electronic devices for instructions (Revised K to 12 Curriculum, 2024).

Information and Communication Technology (ICT). This refers to the integration of information processing computing and communication technologies. It is also changing the way we learn, work and live in society and are often spoken of in a particular context, such as in education, health care or libraries. It also covers any product that will store, retrieve information electronically in a digital form (Lucido, 2022).

Instruction. In this study, it refers to the practice of teaching information and communication technology (ICT) in the senior high school learners along the different domains.

Media Communication. In this study, it refers to the means of interchanging or transmitting and receiving information used by the senior high school (ICT) teachers (Collins, 2022).

Networking. In this study, it refers to construction, design and use of a network, including the physical (cabling, hub, bridge, router) the selection and use of telecommunication protocol and computer software including establishment of operation policies and procedures related to the network (Tanenbaum, 2021).

Setup, Maintenance and Troubleshooting. In this study, it refers to the process of diagnosing the source of a problem. It is used to fix problems with hardware, software and many other products (Collins, 2022).

Social, Legal and Ethical Issues. They refer to issues concerning how computers have affected the way society is organized and how people react and behave towards each other. Further, they refer to issues which have something to do with right or wrong (Collins, 2022).

Software Technologies. They refer to programs or corresponding materials for a computer (DepEd Service Manual, 2022).

Spreadsheets. It refers to an interactive computer application program for organization and analysis of data in tabular form (Howard, 2020).

Telecommunication. It refers to communication at a distance by technological means particularly through electrical signals or electromagnetic waves (Collins, 2022).

Word Processing. It refers to writing, editing and production of documents as letters, reports and books through the use of a computer program or a computer system designed to facilitate rapid and efficient manipulation of text (Collins, 2022).

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Chapter 2

RESEARCH METHODOLOGY

This chapter presents the methods and procedures adopted by the researcher in conducting the study.

Research Design

The research method used in this study is the descriptive research method. This method is used to establish the prevailing status or conditions to situations which call for the analysis of difference without variable manipulation Best (2019). The use of the descriptive method is appropriate since, this study seeks to determine the level of technology competencies of teachers along the nine (9) domains of ICT and the seriousness of problems encountered by teachers.

Locale and Population of the Study

The study was conducted in Malasiqui, Pangasinan, Division I of Pangasinan during the school year 2024-2025. Respondents consisted of the total enumeration of eighty-six (86) public school teachers and twenty (20) school administrators covering twenty (20) public secondary schools in the municipality of Malasiqui, Pangasinan.

Table 1 shows the distribution of respondents of the study by school.

Table 1
Distribution of Respondents by School

Schools	Teachers	School Administrators
1. Aliaga National High School	5	1
2. Calbueg National High School	3	1
3. Canan National High School	4	1
4. Catalino Cerezo National High School	3	1
5. Clemente Cristobal National High School	4	1
6. Domingo Boquiren National High School	5	1
7. Don Pedro National High School	6	1
8. Lareg-Lareg National High School	4	1
9. Lokeb Norte National High School	3	1
10. Lokeb Sur National High School	4	1
11. Lunec National High School	3	1
12.Mabulitec-Integrated School	4	1
13.Malasiqui National High School	12	1
14.Nalsian-Tomling National High School	6	1
15.Nancapian National High School	5	1
16.Olea National High School	4	1
17.Palapar National High School	3	1
18.San Julian National High School	3	1
19.Talospatang National High School	5	1
20.Tobor National High School	4	1
Total	**86**	**20**

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Data-Gathering Instrument

The research study made used of questionnaire as a research tool in data gathering data. It is descriptively structured (closed-ended questions) consisted of three (3) parts.

Part I consisted of the list of hardware and software technologies based on the list found in technology and livelihood education manual under Most Essential Learning Competencies (MELCs) of the Department of Education (DepEd).

Part II consisted of the indicators of level of technology competencies along the nine (9) domains of Information and Communication Technology (ICT).

Part III consisted of the seriousness of problems encountered by teachers in their level of technology competencies.

These are adopted from Basic Technology Competencies Educator's Inventory (BTCEI, 2023).

Data-Gathering Procedures

The researcher sought permission from the Schools Division Superintendent of Pangasinan I. After permission was granted, the researcher also asked permission from the twenty (20) participating respondents public school administrators in the municipality of Malasiqui, Pangasinan.

The set of instruments was personally administered to the respondent teachers and their school administrators. After of which data were tallied and presented in tables for analyses and interpretations.

Statistical Treatment of Data

Problem Number 1 on the availability of hardware and software technologies was answered by using check mark (✓) frequency counts and percentages.

Problem Number 2 on the level of technology competencies of public secondary school teachers in the different domains of ICT was answered by using the 5-Point Value Likert Scale and was subjected to average weighted mean (AWM) with descriptive equivalent.

Scale	Scale Limit	Descriptive Equivalent (DE)
5	4.21-5.00	Very High
4	3.24-4.20	High
3	2.61-3.40	Moderate
2	1.81-2.60	Low
1	1.00-1.80	Very Low

Problem Number 3 on determining the significant differences between the perceptions of teachers themselves and their school administrators along their level of technology competencies was answered by using t-test.

Formula for t-test:

Formula:

$$t = \frac{\overline{X}_1 - \overline{X}_2}{SD\overline{x}}$$

Where:

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$\overline{X}_1$ = First Mean

$\overline{X}_2$ = Second Mean

$SD\bar{x}$ = Standard error of difference between the two means

$$SDx = \sqrt{\frac{\sum X_1^2 + \sum X_2^2}{(N_1+N_2)-2}\left(\frac{1}{N_1}+\frac{1}{N_2}\right)}$$

Problem number 4 on determining the degree of seriousness of problems encountered by the respondent teachers was answered by using the 3-Point Value Likert Scale are as follows:

Scale	Statistical Limit	Descriptive Equivalent
3	(2.34 – 3.00)	Serious (S)
2	(1.67 – 2.33)	Moderately Serious (MS)
1	(1.00 – 1.66)	Not Serious (NS)

Chapter 3

RESULTS AND DISCUSSION

This chapter presents the data gathered and are analyzed and interpreted in the light of the problems posed.

Table 2 showed the frequency counts and percentage scores on the Availability of Hardware and Software Technologies.

Table 2

Percentage Scores in the Availability of Hardware and Software Technologies in ICT Instruction

Hardware Technologies	Frequency	Percentage
1. Computers	20	100%
2. Laptops	4	20%
3. LED Monitors	20	100%
4. Tablets	20	42%
5. Remote Whiteboards	18	33%
6. Portable Projectors	15	75%
7. Moving Graphics Modules	5	25%
8. Animated Instructions	7	35%
9. Digitize Modules	8	40%
Average Frequency / Percentage		**65%**

Software Technologies	Frequency	Percentage
1. Computer Instructional Programs	17	85%
2. Google Drive	16	80%

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3. Telecasts / Teleconference	20	100%
4. Broadcasts	14	70%
5. Vlogs	17	85%
6. Software Applications	19	95%
7. Live Streaming	12	60%
8. Online Activities	15	75%
9. Electronic Simulation Modules	9	45%
Average Frequency / Percentage		**77.22%**

Data in the table 2 revealed that LED monitors in senior high schools has been prevalent with (100%) this only implied that hardware technologies such as LED television used in delivery of instructions were fully available in the twenty (20) Public Secondary Schools of Malasiqui, Pangasinan. Tape recorder (90%) comes in the next as available in twenty (20) schools. All the other hardware technologies were partially available in most of the twenty (20) high schools. This means most of the high schools were not equipped with hardware technologies essential to the efficient and effective implementation of the ICT programs. This, in turn, impede learning on the part of the students.

Similarly, data in the same table showed that telecasts/teleconference (100%) is the only software technology fully available in the twenty (20) schools. The rest of the software materials were not completely available to all the twenty (20) schools. Just same in hardware technologies, many senior high schools in Malasiqui, Pangasinan were deficient in software technologies.

The overall average frequency and percentage in both hardware and software technologies are 65% and 77.22% respectively.

This only deduced that the teachers in the different schools need of more hardware technologies and software materials to be able to teach effectively thereby enhancing the learning of the students in the different learning areas.

As pointed out by Calderon (2020), the used of technologies can ensure learning more effective, meaningful and permanent. Thus, the students can conceptualize the lesson better if there were appropriate technologies being utilized in teaching any subject.

Level of Technology Competencies of Teacher Respondents on the Different Domains of ICT

The level of Technology Competencies of Teacher Respondents along the Different Domains of ICT is presented and described in the tables that follow.

Basic Computer Operation Skills

Table 3 presented the level of technology competencies of teacher respondents along the domain of basic computer operation skills.

It is apparent in the table that out of the five (5) indicators of technology competencies two (2) are described as very high and three (3) are high. The average weighted means ranges from 4.16 to 4.32.

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Table 3
Level of Technology Competencies of Teacher Respondents Along the Domain of Basic Computer Operation Skills

Indicators	Teachers		School Administrators		Overall	
	AWM	DE	AWM	DE	AWM	DE
1. Insert and eject universal serial bus USB/Flash drives	3.42	High	3.44	High	3.43	High
2. Store files in folder/subdirectory	4.16	High	4.10	High	4.13	High
3. Access information on GOOGLE DRIVES, storage drive, and hardware	4.24	Very High	4.22	Very High	4.23	Very High
4. Create and delete folders/subdirectories	4.32	Very High	4.30	Very High	4.32	Very High
5. Overall rating of basic computer operation skills	4.20	High	4.18	High	4.19	High
Overall Average Weighted Mean	**4.07**	**High**	**4.05**	**High**	**4.06**	**High**

The top two (2) indicators were Create and delete folders / subdirectories (4.32). This means that teachers are effective in discarding folders / subdirectories. This domain was very vital to increase their level of technology competencies. Access information of google drives, storage drive and hardware (4.24). This only meant that teachers are knowledgeable in accessing data and information along google applications such as google forms and drives. Likewise, teachers in ICT has the adept knowledge in storing information in online system. This also indicates that teachers were equipped this indicator of basic computer skills.

On the other hand, the lowest two (2) indicators were insert and eject usb/flash drives (3.42). Store files in a folder subdirectory (4.16). This indicates that teachers are capable of placing and storing files in folders. This only meant that most of the learners lacks capacity to buy their own flash drives as this device were costly and will be additional burden to them. Hence, these can add to their level of technology competence when address accordingly.

The overall average weighted means of the two (2) groups of respondents was described as high. This only implied that teachers are equipped in the domain of basic computer operation skills as they always attend seminars and training provided by the division offices. Further, the Commission of Information and Communication Technology (2020), states that teachers need specialized competencies that enable them to use ICT hardware and software optimally in the fulfillment of their tasks as facilitator of learning in their respective schools.

Setup, Maintenance and Troubleshooting of Equipment

Table 4 revealed that two (2) out of the five (5) indicators are described as high and three (3) are moderately high. There were two (2) indicators identified as high, these were the

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connecting peripheral (3.42). This means that teachers are skillful in linking peripheral devices as a way to contribute troubleshooting of equipment. Another was the managing memory card (3.44) is the second highest indicator. This basically showed that teachers have the access to manage memory card which is also considered as one important concern this domain.

Table 4
Level of Technology Competencies of Teacher Respondents Along the Domain of Setup, Maintenance and Troubleshooting of Equipment

Indicators	Teachers		School Administrators		Overall	
	AWM	DE	AWM	DE	AWM	DE
1. Protection of storage drives	3.25	Moderately High	3.27	Moderately High	3.26	Moderately High
2. Virus protection	3.32	Moderately High	3.36	Moderately High	3.34	Moderately High
3. Connecting peripheral devices	3.43	High	3.42	High	3.42	High
4. Managing memory card	3.46	High	3.42	High	3.44	High
5. Overall rating of ability to setup, maintain and troubleshoot equipment	3.38	Moderately High	3.32	Moderately High	3.35	Moderately High
Overall Average Weighted Mean	**3.37**	**Moderately High**	**3.36**	**Moderately High**	**3.36**	**Moderately High**

On the other hand, the lowest two (2) indicators were protection of storage drives (3.26) which is described as moderately high. This means that teachers are less effective in safeguarding storage drives (3.26). This indicates that teachers have inadequate knowledge along this line. Virus protection (3.34) is the second lowest indicator. This showed that teachers are deficient in knowledge along how to safeguard virus. This may not be underestimated for it will affect the entire equipment hence, this should be given much care and attention.

Taken as a whole, the overall average mean is 3.37 was described as moderately high. This implied that teachers are lack of "know-how" along the domain of Setup, maintenance and troubleshooting of equipment. As such, they are less skillful relative to this dimension.

Soriano, (2022) pointed out that teachers should not only be competent on the "know-how" of computer but also on the maintenance, and troubleshooting of equipment in order to prevent class interruptions and delay, thereby causing them to become effective in performing tasks relative to the present needs of the time along exemplary performance within the parameter of their commitment as mentors.

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Aloysian Interdisciplinary Journal of Social Sciences, Education, and Allied Fields
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Word Processing

Table 5 presented level of technology competencies of teacher respondents along the domain of word processing. It is evident in table 5 out of five (5) indicators four (4) were described as very high and one (1) is high. The top two (2) indicators are Insert files, graphics and tables in a document (4.48). This meant that teachers are skillful in proper placing of files and other documents relative to this domain. This indicates that they are capable and knowledgeable along this line to make them more effective and efficient. Change font size and type (4.33). This showed that teachers have the "know-how" in respect to effective changing of font size. This indicates that they can contribute to improve their performance relative to the purpose.

Table 5
Level of Technology Competencies of Teacher Respondents Along the Domain in Word Processing

Indicators	Teachers		School Administrators		Overall	
	AWM	DE	AWM	DE	AWM	DE
1. Set margins	4.28	Very High	4.26	Very High	4.27	Very High
2. Change font size and type	4.35	Very High	4.31	Very High	4.33	Very High
3. Cut, copy and paste in and between documents	3.46	High	3.42	High	3.44	High
4. Insert, files, graphics and tables in a document	4.50	Very High	4.46	Very High	4.48	Very High
5. Overall rating of word processing ability	4.44	Very High	4.40	Very High	4.42	Very High
Overall Average Weighted Mean	**4.21**	**Very High**	**4.17**	**Very High**	**4.19**	**Very High**

On the other hand, the lowest two (2) indicators are: Cut, copy and paste in and between documents (3.44) which is described as high. This meant that teachers are equipped in the proper placing of files and tables in a document which was also a vital part of word processing. Set margins (4.27) is the lowest indicator based on the average weighted mean. This only meant that teachers have the ability to set margins which make them more effective in working with word processing.

The overall average weighted mean is 4.19 which is described as high. This implied that teachers attained technology competencies in word processing. This goes to show that they are

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capable of handling writing, editing and production of documents through the use of a computer program or system efficiently and effectively.

Spreadsheets

Table 6 presented level of technology competencies of teacher respondents along the domain of spreadsheets.

Out of the five (5) indicators of Spreadsheets, three (3) are described as high and two (2) were moderately high. The top two (2) indicators are: Move data within spreadsheets (3.61) which was described as high. This meant that teaches are knowledgeable in transferring data within spreadsheets. Enter data in cells (3.46) is the second highest indicators which is also described as high. This only implied that teachers are effective in the proper entering of data in cells. This may not be underestimated for it contributes technology competencies along this line.

However, the lowest two (2) indicators are: Use formulas (3.38) which is described as moderately high. This means that teachers were less effective in employing formulas. They were still deficient along this line. Create charts (3.38) which was also described as moderately high. This goes to show that teachers lack "know-how" along establishment of charts.

Table 6
Level of Technology Competencies of Teacher Respondents Along the Domain of Spreadsheets

Indicators	Teachers		School Administrators		Overall	
	AWM	DE	AWM	DE	AWM	DE
1. Enter data in cells	3.45	High	3.47	High	3.46	High
2. Move data within a spreadsheets	3.60	High	3.42	High	3.61	High
3. Use formulas	3.36	Moderately High	3.40	Moderately High	3.38	Moderately High
4. Create charts	3.37	Moderately High	3.39	Moderately High	3.38	Moderately High
5. Overall rating of Spreadsheet Management	3.42	High	3.46	High	3.44	High
Overall Average Weighted Mean	**3.44**	**High**	**3.47**	**High**	**3.46**	**High**

Taken as a whole, the overall average weighted mean is 3.46 is described as high. The findings implied that the teachers possessed the skills of the domain of spreadsheets including creating spreadsheets with rows, columns and heading likewise graph from spreadsheets data. In other words, they were capable of performing interactive computer application programs for organization and analysis of data in tabular form.

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Database

It refers to an organize collection of data or to data themselves and supporting data structures. Data were typically organized to model relevant aspects of reality in a way that supports processes requiring information.

Table 7 presented technology competencies of teacher respondents along the domain of database.

In this table, it revealed that among the five (5) indicators of database one (1) was described as high and the rest of the indicators were moderately high. The average weighted means ranges from 3.33 to 3.61. The top two (2) highest indicators are: Enter data in a database (3.61). This only meant that teachers are effective in placing data in a database. Produce a report in a database (3.38). This only meant that teachers have less capability to manage and organize a report in a database. Organizing report is one (1) aspect of database which was very efficacious.

Table 7
Level of Technology Competencies of Teacher Respondents Along the Domain of Database

Indicators	Teachers		School Administrators		Overall	
	AWM	DE	AWM	DE	AWM	DE
1. Enter data in a database	3.60	High	3.62	High	3.61	High
2. Sort and search in a database	3.32	Moderately High	3.34	Moderately High	3.33	Moderately High
3. Produce a report in a database	3.37	Moderately High	3.39	Moderately High	3.38	Moderately High
4. Queries using "and" and "or"	3.35	Moderately High	3.33	Moderately High	3.34	Moderately High
5. Overall rating of competencies using a database	3.38	Moderately High	3.34	Moderately High	3.36	Moderately High
Overall Average Weighted Mean	**3.40**	**Moderately High**	**3.40**	**Moderately High**	**3.40**	**Moderately High**

On the other hand, the lowest two (2) indicators are Sort and search in a database (3.33) which was described as moderately high. This shows that teachers are still deficient in classifying and searching in a database. The process of sorting out data was something very vital. Queries using "and" "or" (3.34) is the second lowest indicator. This meant that teachers are less knowledgeable along statements using "and" "or". This indicates that they are less skillful along this line.

Taken as a whole, the overall average weighted mean is 3.40 which was described as moderately high. This basically implies that teachers lack "know-how" relative to intensive organization and collection of data structure.

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Networking

Table 8 presented technology competencies of teacher respondents along the domain of Networking.

Table 8

Level of Technology Competencies of Teaching Respondents Along the Domain of Networking

Indicators	Teachers		School Administrators		Overall	
	AWM	DE	AWM	DE	AWM	DE
1. Logging on a network	3.35	Moderately High	3.37	Moderately High	3.36	Moderately High
2. Working in a network environment	3.44	High	3.46	High	3.45	High
3. Electronic file sharing	3.52	High	3.48	High	3.50	High
4. Knowledge of advantages of server	3.38	Moderately High	3.40	Moderately High	3.39	Moderately High
5. Overall rating of networking skills	3.42	High	3.46	High	3.44	High
Overall Average Weighted Mean	**3.42**	**High**	**3.43**	**High**	**3.42**	**High**

It is evident in table 8 that the average weighted means of the five (5) indicators ranges from 3.36 to 3.50 such that out of the five (5) indicators three (3) are described as high and two (2) were moderately high.

The top two (2) indicators are: Electronic file sharing (3.50) this meant that teachers are effective in working out with networking file. Working in a network environment (3.45) is described as high. This showed that teachers are skillful managing network environment. This further indicates that teachers are knowledgeable about this line.

However, on the other hand, the lowest two (2) indicators were: Logging on a network (3.36) which was described as moderately high. This meant that teachers lack "know-how" in logging on a network for an unlimited time. This has not disregarded for it contributes to networking. Knowledge advantages of server (3.39) is the second lowest indicator which was described as moderately high. This meant that teachers have less adequate knowledge relative to advantages of server hence, this is also vital component of networking.

Taken as a whole, the overall average weighted mean is 3.42 which was described as high. Findings showed that teachers possess the necessary competencies needed in the communication, design and use of a network including the physical (cabling, hub, bridges, router) and computer hardware including establishment of operation policies and procedures.

Table 9 presented the technology competencies of teacher respondents along the domain of telecommunication.

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Table 9
Level of Technology Competencies of Teacher Respondents Along the Domain of Telecommunication

Indicators	Teachers		School Administrators		Overall	
	AWM	DE	AWM	DE	AWM	DE
1. Send and receive E-mail	3.39	Moderately High	3.37	Moderately High	3.38	Moderately High
2. Navigate the www	3.44	High	3.48	High	3.46	High
3. Subscribe to a List-serve	3.41	High	3.47	High	3.44	High
4. Develop programs using an authoring system or language	3.35	Moderately High	3.32	Moderately High	3.34	Moderately High
5. Overall rating of telecommunication	3.40	Moderately High	3.30	Moderately High	3.35	Moderately High
Overall Average Weighted Mean	**3.40**	**Moderately High**	**3.39**	**Moderately High**	**3.40**	**Moderately High**

Table 9 revealed that out of the five (5) indicators of telecommunication three (3) were described as moderately high and two (2) were high. The average weighted means of the five (5) indicators ranges from 3.34 to 3.46. The top two (2) indicators were: Navigate the browser (3.46). This meant that teachers are knowledgeable relative browser navigation. Subscribe to a list-serve (3.44) was the second highest indicator. This meant that teachers have adequate knowledge along subscription to a list-serve. This was something efficacious as one aspect of telecommunication.

However, the lowest two (2) indicators were: Develop programs using an authorizing system or language (3.34). This only implied that teachers are less skillful along this line. Send and receive e-mail (3.38) was also described as moderately high. This implied that teachers are deficient in reading and receiving e-mail. This is considered a vital process of telecommunication.

The overall average weighted mean is 3.40 which was described as moderately high. This indicated that teachers as a whole were less equipped with the competencies needed for telecommunication at distance by technological means.

It is similar to what Abad (2021) pointed out that most of the teachers lack competencies and skills in the use of internet particularly in developing programs, subscribing including doing online research.

Table 10 presented technology competencies of teacher respondents along the domain of media communication.

Data on table 10 revealed that out of the five (5) indicators of media communication all are described as moderately high. Average weighted means range from 3.33 to 3.38. The top two (2) indicators were: Develop an electronic show (3.38). This only implied that teachers were effective in organizing an electronic show. This was a vital aspect of media communication to develop a presentation utilizing graphics and sound (3.36). This only implied that teachers were less skillful relative to this line.

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Table 10
Level of Technology Competencies of Teachers Respondents Along the Domain of Media Communication

Indicators	Teachers		School Administrators		Overall	
	AWM	DE	AWM	DE	AWM	DE
1. Use an overhead projector	3.34	Moderately High	3.36	Moderately High	3.35	Moderately High
2. Develop an electronic slide show	3.37	Moderately High	3.40	Moderately High	3.38	Moderately High
3. Develop an interactive electronic slide show	3.30	Moderately High	3.36	Moderately High	3.33	Moderately High
4. Develop a presentation utilizing graphics and sound	3.38	Moderately High	3.35	Moderately High	3.36	Moderately High
5. Overall rating of media communication	3.39	Moderately High	3.36	Moderately High	3.38	Moderately High
Overall Average Weighted Mean	**3.36**	**Moderately High**	**3.37**	**Moderately High**	**3.36**	**Moderately High**

However, the lowest two (2) indicators are: Develop an interaction electronic slide show. This meant that teachers lack "know-how" pertaining to interactive electronic slide show. Use an overhead projector was the second lowest indicator with an average weighted mean of 3.35 which is also described as moderately high. This implied that teachers were deficient in knowledge relative to the utilization of overhead projector which was also something which cannot be disregarded as a component of media communication.

However, the overall average weighted mean is 3.36 which is described as moderately high. This only meant that teachers still lack skills and competencies in all tasks under the domain. In other words, this implied that teachers were not yet fully capable of performing tasks relative to interchanging, transmitting and receiving information.

Social, Legal and Ethical Issues

Table 11 presented technology competencies of teacher respondents along the domain of social, legal and ethical issues.

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Table 11
Level of Technology Competencies of Teacher Respondents Along the Domain of Social, Legal and Ethical Issues

Indicators	Teachers		School Administrators		Overall	
	AWM	DE	AWM	DE	AWM	DE
1. Knowledge of copyright laws	3.38	Moderately High	3.32	Moderately High	3.34	Moderately High
2. Knowledge concerning shareware	3.34	Moderately High	3.36	Moderately High	3.35	Moderately High
3. Knowledge of software piracy	3.28	Moderately High	3.32	Moderately High	3.30	Moderately High
4. Knowledge of intellectual property rights	3.39	Moderately High	3.31	Moderately High	3.35	Moderately High
5. Overall rating of social, legal and ethical issues	3.40	Moderately High	3.38	Moderately High	3.39	Moderately High
Overall Average Weighted Mean	**3.36**	**Moderately High**	**3.34**	**Moderately High**	**3.35**	**Moderately High**

It is evident in table 11 among the five (5) indicators of social, legal and ethical issues all are described as moderately high. The average weighted means ranges from 3.30 to 3.39. The top two (2) indicators were overall rating of social, legal and ethical issues (3.39).

This only implied that teachers are less effective in working out with the domain of social, legal and ethical issues. This further showed that teachers still deficient in knowledge in performing all the tasks along this line. Knowledge of intellectual property rights (3.35) which was described as moderately high. This implied that teachers were less adequate in terms of knowledge and information along this domain.

However, the lowest two (2) indicators were: knowledge of software privacy (3.30) and knowledge of copyright laws (3.34). This meant that teachers were less effective in this specific domain under information and communication technology (ICT) teaching competencies.

Summary on the Level of Technology Competencies of Teacher Respondents in the Different Domains of ICT

Data in table 12 revealed that the grand mean of the nine (9) domains of ICT ranges from 3.35 to 4.19. In the same table also shows that the top three (3) domains of ICT were: Word processing (4.19), Basic Computer Operation Skills (4.06) and Database (3.40). These are described as high and moderately high respectively.

However, the lowest three (3) domains are: Social, legal and ethical issues (3.35), Setup,

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maintenance and troubleshooting of equipment (3.36) and Media communication (3.36) with a common descriptive rating of moderately high.

Taken as a whole, the grand mean is 3.56 which was described as high. Further, it revealed that generally the ICT teachers were effective in the different domains of ICT. However, it must be mentioned that there were some domains which they still lack the needed skills and competencies to be able to teach them efficiently and effectively.

Table 12
Summary of the Level of Technology Competencies of Teacher Respondents in the Different Domains of ICT

Indicators	Teachers		School Administrators		Overall	
	AWM	DE	AWM	DE	AWM	DE
1. Basic Computer Operation Skills	4.07	High	4.05	High	4.06	High
2. Setup, Maintenance and Troubleshooting of Equipment	3.37	Moderately High	3.36	Moderately High	3.36	Moderately High
3. Word Processing	4.21	Very High	4.17	Very High	4.19	Very High
4. Spreadsheets	3.44	High	3.47	High	3.46	High
5. Database	3.40	Moderately High	3.40	Moderately High	3.40	Moderately High
6. Networking	3.42	High	3.43	High	3.42	High
7. Telecommunication	3.40	Moderately High	3.39	Moderately High	3.40	Moderately High
8. Media Communication	3.36	Moderately High	3.37	Moderately High	3.36	Moderately High
9. Social, legal and ethical issues	3.36	Moderately High	3.34	Moderately High	3.35	Moderately High
Grand Mean	**3.56**	**High**	**3.55**	**High**	**3.56**	**High**

Significant Differences Between Perceptions of Teachers and their School Administrators in Level of Technology Competencies of Teachers in the Different Domains of ICT.

Table 13 presented perceptions between teachers and their school administrators in their level of technology competencies along the different domains of ICT.

In order to determine whether or not significant difference in the perceptions of both groups of respondents exist t-test was employed. Table 13 revealed that the computed t-value and a critical value are 0.805 and 1.85 respectively. The null hypothesis was accepted considering that the computed t-value is smaller than the critical value at the .05 level of

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significance. This means that there were no significant differences between the perceptions of teachers themselves and their school administrators in the level of technology competencies of teachers in the different domains of ICT.

Table 13
Significant Differences Between Perceptions of Teachers and their School Administrators in their Level of Technology Competencies in the Different Domains of ICT

Indicators	Teachers		School Administrators	
	AWM	DE	AWM	DE
1. Basic Computer Operation Skills	4.07	High	4.05	High
2. Setup, Maintenance and Troubleshooting of Equipment	3.37	Moderately High	3.36	Moderately High
3. Word processing	4.21	Very High	4.17	High
4. Spreadsheets	3.44	High	3.47	High
5. Database	3.40	Moderately High	3.40	Moderately High
6. Networking	3.42	High	3.43	High
7. Telecommunication	3.40	Moderately High	3.39	Moderately High
8. Media Communication	3.36	Moderately High	3.37	Moderately High
9. Social, Legal and Ethical Issues	3.36	Moderately High	3.34	Moderately High
Grand Mean	**3.56**	**High**	**3.55**	**High**

Computed t-value : 0.805
Critical value : 1.85 @df 8
Decision : Accept the Null Hypothesis
Interpretation : No Significant Differences

This implied that the perceptions of the two (2) groups of respondents were on the same level. Thus, it could be deduced that their perceptions are devoid of bias.

Problems Encountered by Teacher Respondents in their Technology Competencies

Table 14 presented the seriousness of problems encountered by teachers in their technology competencies.

Data gathered revealed that the top five (5) serious indicators are: Lack of funds in the provision of technologies (2.47), Lack of "know-how" in the use of the different technologies like PowerPoint/Slide Projector (2.44), Lack of training in the preparation, maintenance and troubleshooting of equipment (2.43), Lack of support by the authorities and other linkages in the

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provision of the different technologies (2.41) and Poor quality of technologies produced and distributed (2.39).

Table 14
Seriousness of Problems Encountered by the Teacher Respondents in their Technology Competencies

Indicators	Degree of Seriousness of Problems		
	Average weighted Mean (AWM)	Descriptive Equivalent (DE)	Rank
1. Lack of training in the preparation, maintenance and troubleshooting of equipment.	2.43	Serious	3
2. Poor quality of technologies produced and distributed.	2.39	Serious	5
3. Lack of resource persons to initiate training and staff development relative to utilization of the different technologies.	2.16	Moderately Serious	10
4. Some instructional technologies are already defective.	2.34	Serious	8
5. Lack of "know-how" in the use of the different technologies like PowerPoint/Slide Projector.	2.44	Serious	2
6. Limited chance and opportunities to be tapped or selected as participant in the training on technology.	2.36	Serious	6.5
7. Lack of funds in the provision of technologies.	2.47	Serious	1
8. Disparity in the distributions of technologies by the concerned authorities.	2.36	Serious	6.5
9. Lack of support by the authorities and other linkages in the provision of the different technologies.	2.41	Serious	4
10. Low level of safety awareness.	2.31	Moderately Serious	9
Overall Average Weighted Mean	**2.37**	**Serious**	

However, the lowest two (2) were low level of safety awareness (2.31) and lack of resource persons to initiate training and staff development relative to utilization of the different technologies. Taken as a whole, the overall average weighted means is 2.37 which was described as serious.

Further analysis of the data showed that most of the indicators are described as serious. This only implied that the teachers may hamper themselves from increasing their level of

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technology competencies along the different domains of information and communication technology (ICT) subject.

Proposed Action Plan

Based on the findings of the study including the degree of seriousness of problems encountered, the proposed plan of action was formulated.

In formulating said plan, special focus was given to areas that require immediate attention because of their significance in enhancing teachers' level of technology competencies along the different domains of ICT.

The proposed action plan has the following components:

1.Areas of Concern
2.Targets
3.Activities / Strategies
4.Time Frame
5.Person / Agencies Involved
6.Budget Estimate
7.Success Indicators

The proposed action plan is presented in tabular form in the pages that follow.

General Objective:

This action plan aims to enhance the delivery of instruction for the information and communication technology (ICT) of public senior high school teachers vis-à-vis with the problems encountered by the teacher-respondents and their perception which led to the creation this intervention. The identified problems based on the results or findings in this study was considered for the formulation of the foregoing intervention.

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PROPOSED ACTION PLAN TO IMPROVE THE LEVEL OF TECHNOLOGY COMPETENCIES OF SENIOR HIGH SCHOOL TEACHERS ALONG THE NINE (9) DOMAINS OF INFORMATION AND COMMUNICATION TECHNOLOGY

Areas of Concern	Targets / Objectives	Activities / Strategies	Time Frame	Persons / Agencies Involved	Budget Estimate	Success Indicator
1. Basic Computer Operations Skills	To improve teachers' competencies in basic computer skills.	Attend short term course related to computer operation	Summer Break Saturday Classes	Teachers	P20,000.00	95% of the teachers shall have improved their competencies in basic computer skills.
2. Setup, Maintenance and Troubleshooting of Equipment	To equip teachers about protection of storage drives, virus protection, connecting peripheral devices, managing memory including ability to set-up, maintain and troubleshoot equipment.	Attend division training on the areas / indicators along the identified domain.	Semester Break	Division Personnel Principal Teachers	P25,000.00	85% of the teachers shall have equipped with the aforementioned areas / indicators including ability to setup, maintain and troubleshoot equipment.
3. Word Processing	To gain teachers "know-how" of word	Conduct training and lecture on word processing	During Saturday and Sunda	Principal Teachers Resource Person		90% of the teacher shall have gained "know-how" word

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	processing which also includes setting of margins, cutting, copying and pasting in and between documents and changing font size and type.		y			processing including the identified areas.
4. Spreadsheets	To improve teachers' competency relative to enter data in cells, move data within a spreadsheets, use formulas, create charts including spreadsheets management ability.	Initiate training and forum concerning spreadsheets management	Semester Break (3-day training)	Division Supervisor Principal Teachers LGU	P30,000.00	85% of the teachers shall have improved their competencies along the domain of spreadsheets.
5. Database	To equip teachers enter data, sort and search and produce a report in database.	Conduct training and lecture on the proper use of database.	Summer Break (2-day training of database)	Principal Teachers Resource Person	P10,000.00	85% of the teacher4 shall have equipped with the proper use of database.
6. Networking	To gain	Attend LAC	Saturd	Principal	P10,000.	85% of the

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	teachers meaningful insight understanding, and skills concerning networking including logging on a network environment, electronic file sharing and knowledge of advantages of server.	session on networking management	ay and Sunday	Teachers Resource Person	00	teachers shall have gained insight, understanding and skills concerning networking.
7. Telecommunication	To improve teachers' abilities on sending and receiving e-mail navigating the www subscribing to a list serve and developing programs.	Attend division training on Telecommunication	Summer Break	Division Supervisor Principal Teacher	P10,000.00	90% of the teachers shall have improved their abilities relative to areas / indicators along telecommunication.
8. Media Communication	To equip teachers on using overhead, developing an interactive electronic slide show and a	Attend division training on Media Communication Management	Summer Break	Teachers	P10,000.00	90% of the teachers shall have equipped with the identified areas / indicators on Media Communication

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	presentation utilizing graphics and sound asides from skills in media communication.					
9. Social, Legal and Ethical Issues	To acquire teachers' knowledge and concepts about copyright laws, shareware software piracy and intellectual property rights.	Attend lecture and forum on Social, Legal and Ethical Issues	Saturday and Sunday	Teachers Principal	P10,000.00	85% of the teachers shall have acquired knowledge and concepts on the aforementioned indicators.
B. Seriousness of Problems Encountered						
1. Lack of funds in the provision of technologies both hardware and software	To provide funds in the provision of technologies	To engage in the different activities. a. solicitation b. school fund raising campaign c. asking donations from the successful alumni and other civic-spirited	Year Round	Teachers Internal and External Stakeholders	P100,000.00	90% of the amount for the budget estimate shall be provided by the teachers.

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		citizens.				
2. Lack of "know-how" in the use of the different technologies	Teachers should be equipped with the "know-how" in the use of the different hardware and software technologies.	Thru holding of seminars – workshops	Year Round	Principal Teachers Resource Persons	P10,000.00	90% of the teachers shall equipped with the "know-how" in the use of different technologies.
3. Lack of training in the preparation, maintenance and troubleshooting of equipment.	Teachers should undergo training in the preparation, maintenance and troubleshooting of equipment	Conducting seminars-workshops	April – May	Division Personnel Principal Teachers	P10,000.00	95% of the teachers shall have trained in the preparation, maintenance and troubleshooting of equipment.

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Chapter 4

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This chapter presents the re-statement of the research problems which was the focus of this study, summary and salient findings, conclusion and recommendations which are primarily based on the findings.

Summary

The study sought to determine the status of Information and Communication Technology (ICT) Instruction in the Public Senior High Schools of Malasiqui, Division of Pangasinan during the school year 2024-2025 in terms of the availability of hardware and software technologies, level of technology competencies of teachers in the nine (9) domains including seriousness of problems.

The respondents consisted of 86 public senior high school teachers and 20 school administrators among the twenty (20) public secondary schools in the municipality of Malasiqui.

Findings

The salient findings of the study are as follows:

1. Under hardware technologies and telecasts / teleconference under software technologies such as computer, television and broadcast are fully available to all the twenty (20) public senior high schools.
2. The level of technology competencies of teachers is described as high across all indicators.
3. There are no significant differences between perceptions of teachers and their school administrators along their level of technology competencies.
4. The most serious problems encountered by teachers are lack of funds in the provision of technology, lack of "know-how" in the use of the different technologies and lack of training in the preparation, maintenance and troubleshooting of equipment.
5. A plan of action to improve the level of technology competencies of teachers was proposed.

Conclusions

Based on the findings, the following conclusions, were drawn.

1. Most of the hardware machines and software materials are not available.
2. Generally, teachers have reached the desired level of technology competencies in the different domains of ICT.
3. The perceptions of the two (2) groups of respondents are on the same level. Hence, their perceptions are valid and proposed measures can be attained to improve the ICT integration and instructions.
4. The teachers are confronted with problems that hinder them in the efficient and effective delivery of ICT instruction.
5. A plan of action to primarily improve the level of technology competencies of teachers was formulated.

Online ISSN: 3082-5121
Aloysian Interdisciplinary Journal
of Social Sciences, Education, and Allied Fields
https://journals.aloysianpublications.com
Volume 2 Issue 6 (2026)

Recommendations

Based on the findings and conclusions of the study, the following recommendations are forwarded.

1. A proposed plan of action to improve the level of technology competencies of teachers should be presented to the Schools Division Superintendent for adoption and implementation.
2. The teachers should maximize the utilization of technologies available by integrating them into his or her daily lesson log, hence, increasing the emersion of learners to the different kinds of information and communication technologies (ICT) equipment and paraphernalia.
3. Encourage profound classroom instructions using the information and technology as one of the mediums to ease delivery of lesson and maximize contact time of the teachers during classroom hours.
4. Conduct school learning action cells and in-service trainings for teachers to enrich their technical skills in utilizing ICT in their daily lesson.
5. Follow-up of similar study is highly encouraged to purposely enrich the findings of the study.

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