A SURVEY OF STUDENT'S FLUENCY IN INTERNET USAGE AT RAJAMANGALA INSTITUTE OF TECHNOLOGY, PRANAKORN SRI AYUTTHAYA WASUKRI CAMPUS

by

Mr. Maytha Pirompanich

A Final Report of the Three-Credit Course
CE 6998 Project

Submitted in Partial Fulfillment
of the Requirements for the Degree of
Master of Science
in Computer and Engineering Management
Assumption University

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Project Title   A Survey of Student's Fluency in Internet Usage at
         Raj amangala Institute of Technology, Pranakorn Sri
         Aytthaya Wasukri Campus

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The Graduate School of Assumption University has approved this final report of the three-credit course, CE 6998 PROJECT, submitted in partial fulfillment of the requirements for the degree of Master of Science in Computer and Engineering Management.

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ABSTRACT

The research was aimed to study the student's fluency in Internet usage o n the aspects of knowledge about Internet equipment and service, Information search on Internet, Internet for c hatting and E -mail u sage. The samples in this research simple random sampling are from 8 majors of diploma and d egree students o f R ajamangala Institute of Technology, Phranakorn Si Ayutthaya Wasukri campus. The questionaires used, the data analyzed from the statistics of percentage and chi-square.

The result of the research shows the student's fluency level of Internet usage on all of aspects appear medium. When each a spect of knowledge was concerned, most students have knowledge about Internet equipment and service on receiving username and p assword w hen r egistering to an Internet provider. About information search on Internet, web browser program was used mostly to search information on the website. Internet chatting, most on chatting through Internet and e xchanging text message via computer. E-mail usage, most on the need of E-mail addresses being compared to postal addresses of the sender and the recipient.

There were no relationship between gender, age, Internet learning and Internet usage frequency and fluency in Internet usage of significance at .05, but education and Internet experience has relationship with fluency in Internet usage of significance at .05.

ACKNOWLEDGMENTS

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I. INTRODUCTION

1.1 Introduction

Nowadays the technology of telecommunication developing to support network transmission called "Information Society" Internet society is a society interchange information among the group, attach files, pictures, and voice broadcasting, even though in different place.

In Information Technology, the high development of telephone network and computer is the beginning of "The Internet network" The internet is a network that links 170 countries, 64 million people and Internet system develops full duplex communication "interactive" and "multimedia" and is able to connect the computer to different networks.

Internet system has the main computer of the network such as a telephone number and totally difference. (155.104.27.1 nontri system) (161.200.192.12 ChulaNet)

3 ways connection to the Internet for domestic-international service(s):

(1)   Connect to online network of university

(2)   Connect to the Internet via telephone line and modem

(3)   Connect to the Internet via leased line.

The administrator must generate Internet account for all user(s)

Classify 6 category(s) of the Internet usage.

(1)   Electronic Mail

Electronic mail is a message as mail, sent by sender to receiver(s) on the Internet.

(2)   File Transfer

File transfer is a method for transfer file(s) from source to destination

on the Internet.

(3)   Telnet (Run program on the other computer)

Telnet is a Unix command for remote computer that is far way and requests to run the task on the other computer.

(4)   World Wide Web (WWW)

Searching for files and database and have a tool(s) to access the information, generated and run on the web pages.

(5)   Chat

Chat and news group is a service on the Internet for discussion and set the interest topic among the group(s).

The Internet is the computer network that originated from the university at United State of America as a widespread network and expanded to the other countries in the world. There are much more uses of the Internet, that is the reason why the university is interested and join to communicate with it. For research, exchange information and communicate between them, assign the student an assignment for research and developing the student knowledge.

The University is the Knowledge service center for student research, exchange the information (Domestic-International). THAISARN is network subsidized and supported from Thailand's National Science and Technology Development Agency (NSTDA) for generated the university network or campus network. For supporting and develop the education and technology.

The Internet Knowledge Service Center in the University:

(1)   Internet for student registration.

(2)   Internet for research.

(3)   Internet for Interchange Information.

(4)   Internet for student assignment.

(5)   Internet for student assessment.

(6)   Internet for student record.

The use of the Internet helps to improve the communication between teacher(s) to teacher(s), student(s) to teacher(s), student(s) to student(s), including the knowledge interchange, student's research, the university's news service. The different system usage could be analyzed from the student knowledge and there is the qualifications of a student that can develop themselves over the other person that are important point for the technology and nation developing to press onward the world.

There is the one who can get a profit of the Internet. They have to know the method and process of the Internet system or database who are interested. The university is the place to communicate the knowledge of information technology to the students and the students are the users that have the direction of development to improve themselves and to be the specialist.

In this project wants to develop and studies about the computer and Internet system at Rajamankla Institute of Technology Pranakorn Sri Ayutthaya Wasukri campus. For students research and learning the various information from the Internet system and choose the appropriate tools of Information technology.

1.2 Objectives

(1)   To gather the related Information and factor(s) that affect usage of the Internet o f s tudents at R ajamankla Institute of Technology Phranakorn Sri Ayutthaya Wasukri Campus.

(2)   To assess the knowledge of the usage of the Internet of University student in Rajamankla Institute of Technology Phranakhon Sri Ayutthaya Wasukri Campus.

(3)   To improve the education of Information Technology in campus.

(4)   To maximize technology utilization.

1.3 Scope

This project focuses on personnel information, knowledge and acknowledgement of the Internet, also included the usage of the Internet to gather information of the usage of the Internet from university student at Rajamangala Institute of Technology Phranakhon Sri Ayutthaya Wasukri Campus amount 3,145 persons.

1.4 Deliverables

The deliverables for the project are as follows:

(1)   The technical utility research and development.

(2)   The method(s) to maximize technology utilization and course(s) planning in campus.

(3)   The benefit of administrator report, could generate and develop the planning.

(4)   The project report.

II. LITERATURE REVIEW

Concepts, Theory and Reference Research

The research aims competentency of student's fluency of Internet usage at Rajamangala Institute of Technology Pranakorn Sri Ayutthaya Wasukri Campus. Focus on Internet system management of campus and Internet usage knowledge o f student, students are able to use Internet smoothly and easily.

The concepts and theories guide the research.

(1)   The information technology concept.

(2)   The innovation of Internet.

(3)   The theory of management of information system.

(4)   System analysis and design concepts.

2.1 The Information Technology Concepts.

The Internet system is the computer network connected to the computers in the world, different computer brand name and software work through Internet. The software license is controled by a 1 aw, a patent etc. Because o f t he proprietary right affect to technology innovation that high compensation motivates to create a new software version. When using Internet also consider to choose the illegal software, shareware application can be downloaded, it is illegal software for using and developing. But for procomm it is a shareware but some part of it under law of license control.

Quinn defined the characteristic of technology, has the right of owner and no the right of owner. Actually most of technology has a proprietary right that high compensation to motivate to create new software versions (Quinn 1986).

Both two types of technology are rapidly changing and even continue to develop and unable to forecasting the character of it such as the Internet began as a private network connected through specific department of defense network to link scientists and university professors around the world. But today the Internet is the largest implementation of internetworking, linking individual network all over the world. Adeboye said the successful of transferring technology w ill start beginning when the starter can be develop and adapt technology more over the old (Adeboye 1977).

The capability of system to store data and transfer passing around internetworking is on the whole absolutely the largest network data center that results to benefit, people who want to have their own or smuggling benefit such as hacker or companies come to join network for their benefit.

Shoemaker indicated the large scientific knowledge and technology more over than control was destroyed the wisdom of responsibility and competent brain thinking. Anyway caused of the network bigger than human can control that is the violently of it and hard to adapt, it still be the same (Shoemaker 1979).

Information Technology has a step to develop indicated the changing that result of society change. The word of information is the knowledge based on foundation realistic as (Alvin Toffler 1992)

Pre-conversation order. Before A.D. is the tools development era developed for conversation.

(1) Conversation order. 5000-3000 years before A.D. that human can communicate with other people or groups to interchange information, coordinate create information and it is a foundation to develop news.

(2) Literacy order is mass communication management era. Body language and saying, learn to read and change the producing methods from hunting to

make buying and selling. The knowledge is foundation for communication management.

(3)   Mass media order. Since 1870 — 1970, the communication network is the data center. Most activities aim was develop and control social behavior. The information flow based on communication channel of center, result is destination feedback but no one concerned. It is a one way communication.

(4)   New communication order. Since 1970 — 2020, two way communication came to member participation and member is the own of data, share the data to groups and others. Called information society. The human was transform homo economics to homo information. News and information create for supply such as a products, transfer via various communication channels.

To apply the knowledge and understanding with telecommunication system based on the same system. Research data for information interchange and communicate with high speed and correctly data (Alvin Toffler 1992).

A revolution of agriculture is family production. Product production controled by head of family.

A revolution of industry transform agriculture to industrial production. Separate jobs to the right position, put the right man in the right job. Assign employees routine job while getting a factory task adjust to office process procedure. Family administration pattern still used but size was decrease.

A revolution of high technology has been instead old system and it necessary for gaining a profit. The new technology is a tool to develop organization meet the organization objective.

Information Highway is the third wave of technology. Multimedia is the infrastructure of information network. Develop the capability of technology, telephone

line is used for network connection and global network connection passing via under water cable or FLAG (Fiber optic Link Around the Globe) such as Internet system.

2.2 The Innovation of Internet

Both of public and private organizations are networking internally and with other organizations is through the Internet. The Internet is perhaps the largest implementation of internetworking, linking the individual network all over the world. The Internet has a capabilities that organizations. The giant network of networks has become a major catalyst for electronic commerce.

The Internet began as a United States Department of Defense network to link scientists and university professors around the world. Individual cannot directly connect to the Net, although anyone with a computer and a modem and the willingness to pay a monthly usage. Individuals have to access it through an Internet Service Provider. An Internet Service Provider (ISP) is a commercial organization with a permanent connection to the Internet which sells temporary connections to subscribers. Individual can access through such online services as American Online, Hotmail, Yahoo, Mweb.

The Internet that no one owns it and it has no formal management organization. To join the internet, an existing network need only to pay a small registration fee and agree to certain standard based on TCP/IP (Transmission Control Protocol/Internet Protocol) protocol. Costs are low because the Internet has no one own. Each organization only pay for it own networks and it own telephone bills. The cost of e-mail and other Internet connections tends to be far lower than equivalent voice, postal, or overnight delivery costs, making the Net a very inexpensive communications medium. It is also a very fast method of communication, with messages arriving anywhere in the world.

Anyone who has an Internet address can log onto a computer and reach virtually every other computer on the network, regardless of location, computer type, or operation system.

Internet Capabilities, the Internet is based on client/server technology. Users of the Net control what they do through client applications, using graphic interfaces or character-based products that control all functions. All the data, including e-mail messages, database and websites, are stored on servers. Servers dedicated to the Internet to specific Internet functions are that heart of the information on the Net.

Major Internet capabilities include e-mail, newsgroups, chatting, telnet, FTP, gopher, Archie, W AIS, Veronica and World Wide Web. These are a 11 standards and tools to retrieve and offer information.

People-to-People Communications.

Electronic Mail (E-Mail). It connects so many people from all over the world with the most important e-mail. Individuals use Internet e-mail facilities to keep in touch with friends. Organizations use it to facilitate communication between employees and between offices, to communicate with customers and supplies, and to keep in touch with the outside world.

Researchers use this facility to share ideas, information, documents. The position of address to the left of @ symbol in Net e-mail addresses is the name or identifier of the specific individual or organization. To the right of @ symbol is the domain name. The domain name is the unique name of the collection of computers connected to the Internet. The domain contains sub-domains separated by a period. The domain that is farthest to the right is the top level domain, and each domain to the left helps further define the domain by network, department, and even specific computer. The top level domain name may be either a country indicator (such as `th' for Thailand), a function

indicator such as 'corn' for a commercial organization, `edu' for an educational institution, or 'gov' for a government institution. All e-mail addresses end with a country indicator.

Usenet Newsgroups (Forums). Usenet newsgroups are worldwide discussion groups in which people share information and ideas on a defined topic. Discussion takes place in large electronic bulletin boards where anyone can post messages on the topic for others to read.

Chatting allows people who are simultaneously connected to the Internet, interactive written conversations. Only people who signed on at the same time are able to talk because messages are not stored for later viewing as they are on Usenet Newsgroups. This function can be effective business tool if people who can benefit from interactive conversations set an appointment to 'meet' and 'talk' on a particular topic. The limitation of this is this is that the topic is open to all without security so that intruder can participate.

Telnet allows someone to be one computer system while doing work on another. Telnet is the protocol that establishes an error-free, rapid link between the two computers. Allow authorize person log in to your business computer from a remote computer when they are on the road or working from home. The authorize people can also log in and use third-party computers that have been made accessible to the public.

Information Retrieval on the Internet. Many hundreds of library catalogues are online through the Internet, including those of such as the library of Chulalongkorn University. Users are able to search many thousands at database that have been opened to the public. Individuals can gather information stored in these databases. For example, researcher interested in finding information on reactive globalization can quickly search computer databases and locate many articles, paper, books, and even conference reports

from universities and other organization worldwide. They can then download the information for their reading.

File transfer Protocol (FTP) is used to access a FTP servers and retrieve files from it. FTP is a quick and easy method to transfer files. If they know the FTP sites in which the file is stored. Users can log on and move around directories that have been made accessible for FTP to search for the file(s) you want to retrieve. FTP makes transfer of the file to other locations very easily.

Archie is a tool that can be used to search the files at FTP sites. It monitors hundreds of FTP sites and update a database of software, documents, and data files available for downloading called an Archie server. Users can list the files from server, clicking on a server listing from one Archie server will bring you to another computer system where other files are stored. The Archie servers allow users to continue searching for files, moving from database to database, library to library, until you locate what user need. Archie database searches use subject key words you enter, resulting in a list of sites that contain files on the topic.

Gophers is a computer client tool that enables the user to locate information stored on Internet gopher servers. Each gopher site contains its own system of menus listing, local files, and other gopher sites.

Wais (Wide Area Information Servers) is the way to locate a specific file, but it requires to know the names of database you want to searched. Specify database names and key identifying words, Wais searches for the key words in all the file in database. When searching has been completed, server will be given a menu that lists all the files that contain your key words.

The World Wide Web (the web) is the heart in the business use of the Net. The Web is a system set of standards for storing, retrieving, formatting, and displaying

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information using a client/server architecture. It was develop to allow collaborators in remote sites to share ideas of a project. Web combines text, hypermedia, graphics, and sound. The Web uses graphical user interfaces for easy viewing. It is based on a hypertext language called Hypertext Markup Language (HTML) that formats document and dynamic links to other documents and pictures stored in the same or remote computers. U sing these 1 inks, the user need o nly point at a highlighted key word or graphic, click on it, and immediately be transported to another document, probably on another computer somewhere in the world. Users are free to jump from place to place flowing their own logic and interest. Who offer information through the Web must first establish a homepage a text and graphical screen display that usually welcomes the users and explains the organization that has established the page. For most organizations, the home page will lead the user to other pages, with all the pages of an organization or individual being known as a Web site. Most Web pages offer a way to contact the organization or individual.

To access a Web site, the user must use a special software tool known as a Web browser which is programmed according to HTML standards. Because the standard is universally accepted, anyone using a browser c an access any of the millions of Web sites anywhere in the world. Browser use hypertext's point and click links to enable the user to easily navigate to another desired site. Microsoft's Internet Explorer and Netscape Navigator from netscape communications Inc. are currently the most popular web browsers.

Searching for Information on the Web

Location information on the Web is a critical function given the ten millions of Web sites in existence, and the Web is growing by an estimated 300,000 pages per week.

Several companies have created directories of Web sites and their addresses, providing search tools for locating information on specified topic. Yahoo! Is example. People submit sites of interest, which are then classified. To search the directory, enter one or more keywords in the title.

Search tools will search Web pages on their own automatically. Such tools, called "search engines", can find Web sites that people might not know about. Contain software that loads for Web pages containing one or more of the search terms entered by the user, then display by matches ranked by a method that involves the location and frequency of the search terms. These search engines do not display information about every site on the Web, but create index of the Web pages they visit. The search-engine software then locates Web pages of interest by searching through these index. Alta Vista, Lycos, Yahoo and infoseek are examples of these search engines (Laudon 1998).

2.3 The Management Information System and Management of Information Technology

The leaders of campus have to introduce staff to know the concepts of technology facilities, Internet facilities, and the important t o align information technology t o the organization's plan. Leaders have to describe the features of organizations that are to information technology and information systems. After that they have to sets the subject of technology and c omputerize i n the c ourses. The t echnology has grown up dramatically. I n the future, they will depend on technology even more. Knowing the potential of Information systems and having ability to put this knowledge to all level of education can result in successful students career, campus can reach their goals and higher quality of education.

Computers and technology will forever change the society, businesses, education and our lives. They have to understanding how to manage the computer and technology

to meet the goal. This knowledge will set the goal of firms and help leaders unlock the potential of properly applied information system concepts.

Information systems are more than computers. Using information systems effectively requires an understanding of the organization, management, and information technology shaping the systems. All information systems can be described as organizational and management solutions to challenges posed by the environment.
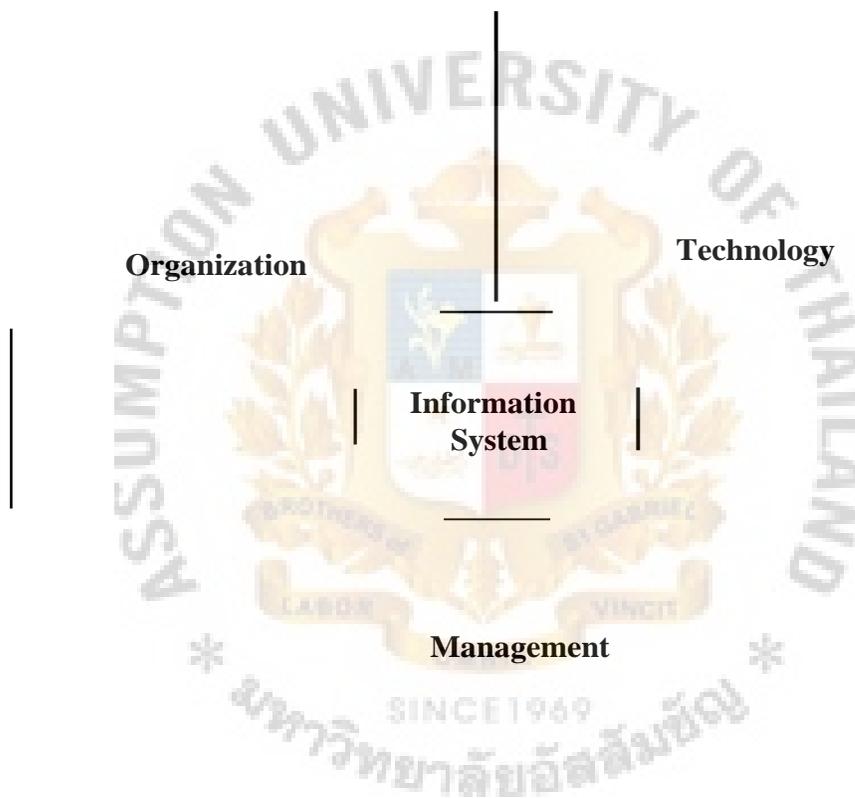
Figure 2.1. Information Systems Environment.

Information system are a part of organizations. The key elements of an organization are its people, structure and operating procedures, politics, and culture. These are components of organizations. Formal organizations are composed of different levels and specialties. Their structures reveal a clear-cut division of labor. Experts are

employed and trained for different functions, including sales and marketing, manufacturing, finance, accounting, and human resource.

An organization coordinates work through a structured hierarchy and formal standard operating procedures. The hierarchy arranges people in a pyramidal structure of rising authority and responsibility. The upper levels of the hierarchy consist of managerial, professional, and technical employees, whereas the lower level consist of operational personnel.

Management perceived business challenges in the environment, they set the organizational strategy for responding and they allocate the human and financial resources to achieve the strategy and coordinate the work.

But less understood is the fact that managers must do more than mange what already exists. They must also create new products and services and even re-create the organization from time to time. A substantial part of management is creative work driven by new knowledge and information. Information technology can play a powerful role in redirecting and redesigning the organization (Laudon 1998).

2.4 Systems Analysis and Design

Information as an organizational resource; organizations have long recognized the importance of managing key resources such as labor and raw materials. Information has now moved to its rightful place as a key resource. Decision makers now understand that information is not just a byproduct of conducting business; rather, it fuels business and can be the critical factor in determining the success or failure of a business.

Managing Information as a resource; to maximize the usefulness of information, a business must manage it correctly, just as it manages other resources. Managers need to understand that costs are associated with the production, distribution, security, storage,

and retrieval of all information. Although information is all around us, it is not free, and its strategic use for positioning a business competitively should not be taken for granted.

Managing Computer-Generated Information; the ready availability of networked computers, along with access to the Internet and the World Wide Web, has created an information explosion throughout society in general and business in particular. Managing computer-generated information differs in significant ways from handling manually produced data. Usually there is a greater quantity of computer information to administer. Costs of organization and maintaining it can increase at alarming rates, and users often treat it less skeptically than information obtained in different ways. The varied roles of systems analysts, and the phases in the systems development life cycle; it also introduces Computer-Aided Software Engineering (CASE) tools.

2.4.1 System Analysis and Design Concepts

Information systems are developed for different purposes, depending on the needs of the business. Transaction processing systems (TPS) function at the operational level of the organization; office automation systems (OAS) and knowledge work systems (KWS) support work at the knowledge level. Higher-level systems include management information systems (MIS) and decision support systems (DSS). Expert systems apply the expertise of decision makers to solve specific, structured problems. On the strategic level of management we find executive support systems (ESS). Group decision support systems (GDSS) and the more generally described computer supported collaborative work (CSCW) systems aid group-level decision making semistructured or unstructured variety (Kendall 1999).

(1) Transaction Process Systems (TPS)

Transaction process systems are computerize information systems that were developed to process large amounts of data for routine business

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transactions such as payroll and inventory. A TPS eliminates the tedium of necessary operational transactions and reduces the time once required to perform them manually, although people must still input data to computerized systems.

Transaction processing systems are boundary-spanning systems that permit the organization to interact with external environments. Because managers look to interact with external environments. Because managers look to the data generated by the TPS for up-to-the minute information about what is happening in their companies, it is essential to the day-to-day operations of business that these systems function smoothly are without interruption.

Office Automation Systems and Knowledge Work Systems (OAS)

At the knowledge level of the organization are two classes of systems. Office automation systems (OAS) support data workers, who do not usually create new knowledge but rather analyze information in order to transform data manipulate it in some way before sharing it with, or formally disseminating it throughout, the organization and, sometimes, beyond. Familiar aspects OAS include word processing spreadsheets, desktop publishing, electronic scheduling, and communication through voice mail, e-mail (electronic mail), and video conferencing.

Knowledge work systems (KWS) support professional workers such scientists, engineers, and doctors b y aiding t hem i n t heir e fforts t o create new knowledge and by allowing them to contribute it to their organization or to society at large.

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(4)   Management Information System (MIS)

Management information system (MIS) do not replace transaction processing systems-rather, all MIS include transaction processing. MIS are computerized information systems that work because of the purposeful interaction between people and computers. By requiring people, software (computer programs), and hardware (computers, printers, etc.) to functions concert, management information systems support a broader spectrum of organizational tasks than transaction processing systems, including decision analysis and decision making.

In order to access information, users of the management information system share a common database. The database stores both data and models that help the user interpret and apply that data. Management information systems output information that is used in decision making. A management information system can also help unite come of the computerized information functions of a business, although it does not exist as a singular structure anywhere in the business.

(5)   Decision Support Systems (DSS)

A higher-level class of computerized information systems is the decision support system (DSS). The DSS is similar to the traditional management information system because they both depend on a database as a source of data. A decision support system departs form the traditional management information system because it emphasizes the support of decision making in all of its phases, although the actual decision is still the exclusive province of the decision maker. Decision support systems are more closely tailored to the person or group using systems are more closely

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tailored to the person or group using them than is a traditional management information system.

(6) Expert Systems and Artificial Intelligence (AI)

Artificial intelligence (AI) can be considered the overarching field for expert systems. The general thrust of AL has been to develop machines that behave intelligently. Two avenues of research of AI are understanding natural language and analyzing the ability to reason though a problem to its logical c onclusion. Expert systems use the approaches of A I reasoning t o solve the problems put to them by business (and other) users.

Expert systems are a very special class of information system that have been made practicable for use by business as a result of widespread availability o f h ardware and s oftware such as microcomputers and expert system shells. An expert system (also called a knowledge-based system) effectively captures and uses the knowledge of an expert for solving a particular problem experienced in an organization. Notice that unlike the DSS, which leaves the ultimate judgment to the decision maker, an expert system selects the best solution to a problem or a specific class of problems.

The basic components of an expert system are the knowledge base, an inference engine connectiong the user with the system by processing queries via languages such as SQL (structured query language), and the user interface. People called knowledge engineers capture the expertise of experts, build a computer system which includes this expert knowledge, and then implement it. It is entirely possible that building and implementing expert systems will be the future work of many systems analysts.

The variety of information systems that analysts may develop are shown in Figure 1.2. Notice that the figure presents these systems from the bottom up, indicating that the operational, or lowest level of the organization, is supported by TPS, and the highest, or strategic level of semistructured and unstructured decisions, is supported by   ESS at the top.

Group Decision Support Systems and Computer-Supported Collaborative Work Systems

When groups need to work together to make semistructured or unstructured decisions, a group decision support system may afford a solution.Group decision support systems(GDSS), which are used in special rooms equipped in a number of difference configurations, permit group members to interact with electronic support-often in the form of specialized software-and special group facilitator. Group decision support systems are intended to bring a group together to solve a problem with the help of various support such as polling, uestionnaires, brainstorming, and scenario creation. GDSS software can be designed to minimize typical negative group behaviors such as lack of participation due to fear of reprisal for expressing an unpopular or contested viewpoint, dominating by vocal group members, and "group think" decision making Sometimes GDSS are discussed under the more general term computer supported collaborative work (CSCW), which might include software support c ailed " groupware" for team collaboration via networked computers.

(8) Executive Support Systems

When executives t urn to the computer, they are often looking for ways to help them make decisions on the strategic level. Anexecutive support sy stem (ESS) helps executives to organize their interactions with the external environment by providing graphics and communications support in accessible places such as boardrooms or personal corporate offices.

Although ESS rely on the information generated by TPS and MIS, executive support systems help their users address unstructureddecision problems, which are not application- specific, by creating an environment that is conducive to thinking about strategic problems Man informed way. ESS extend and support the capabilities of executives, permitting them to make sense of their environments.

(9) Need for Systems Analysis and Design

Systems analysis and design, as performed by systems analysts, seeks to systematically analyze data input or data flow, processing or transforming data, data storage, and information output within the context of a particular business. Furthermore, systems analysis and design I s used to analyze, design, and implement improvements in the functioning of businesses that can be accomplished through the use of computerized information systems.

Installing a system without proper planning leads to great dissatisfaction and frequently causes the system to fall into disuse. Systems analysis and design lends structure to the analysis and design of information systems, a costly endeavor that might otherwise have been 'done in a haphazard way. It can be thought of as a series of as a series of processes

systematically undertaken to improve a business through the use of
computerized information systems. A large part of system analysis and
design involves working with current and eventual users of information
systems.

(10) End users

Anyone who interacts with an information system in the context of his
or her work in organization can be called an end user. Over the years the
distinctions among u sers have b ecome b lurred. Further, any categories of
users employed should not be thought of as exclusive.

However end users are classified, one fact about them remains
pertinent to the systems analyst: Some kind of user involvement throughout
the systems project is critical to the successful development of computerized
information systems Systems analysts, whose roles in the organization are
discussed next, are the other essential component in developing useful
information systems.

2.4.2 The Systems Development Life Cycle (SDLC)

The systems development life cycle is a phased approach to analysis and design
which holds that systems are best developed through the use of a specific cycle of
analyst and user activities.

Analysts disagree on exactly how many phases there are in the systems
development life cycle, but they generally laud its organized approach. Here we have
divided the cycle into seven phases, as shown in Figure 1.3. Although each phases is
presented discretely, it is never accomplished as a separate step. Instead, several
activities can occur simultaneously, and activities may be repeated. That is why it is
more useful to think of the SDLC as accomplished in phases (with activities in full

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swing overlapping with others, and then tapering off) and not in separate steps (Kendall 1999).

(1) Identifying problems, opportunities, and objectives.

(2) Determining information requirements.

(3) Analyzing system needs.

(3) Designing the recommended system.

(4) Developing and documenting software.

(5) Testing and maintaining the system.

(6) The impact of maintenance.

III. RESEARCH METHODOLOGY

This survey research aims at studying fluency of Internet usage of students at Rajamangala Institute of Technology, Phranakorn Sri Ayutthya Wasukri Campus. The tool used in this research is the questionaire and research strategy is as following.

Documentary Research. In this part, it is the study and search theories and concept of fluency of Internet usage from text book, articles, journal, research finding and other materials to be the study background.

Field Research. For accurate and reliable data, it is collected by using questionaire with students at Rajamangala Institute of Technology, Phranakorn Sri Ayutthaya Wasukri Campus.

3.1 Research Population and Sample Size

The population in this research are 3,145 students from Rajamangala Institute of Technology, Phranakorn Sri Ayutthaya Wasukri Campus.

Simple Random Sampling is used to find the sample size from the population of Rajamangala Institute of Technology, Phranakorn Sri Ayutthaya Wasukri Campus's students by using this formula:

e = Error of sample which is .05 in percentage

N = Population

n = Sample Size

$$\frac{N}{1 + Ne^2}$$

$$\frac{3,145}{1 + 3,145 \,(.05)^2}$$

n = 355

So the sample size of this research is 355 students.

3.2 Method of Sampling

There are 8 major subjects of diploma and degree the students of Rajamangala Institute of Technology, Phranakorn Sri Ayutthaya Wasukri Campus. Their majors are Accounting, Marketing, Secretary, Finance, Business Computer, Tourism, Information Technology and Mangement. So, the stratified Random Sampling used to calculate the sample size is as follows:

Formula :

$$ni, \quad \frac{\overline{Nh}}{N} * n_o$$

n_h = Sample size in each major subject

Nh   Population in each subject

N = Population of every major subject

n_o Sample size of subject

Table 3.1. Sample Size If the Students.

Education	Degree/Major	Population	Sample Size
Diploma	Accounting	499	56
	Marketing	446	50
	Secretary	134	15
	Finance	181	20
	Business Computer	286	32
	Tourism	85	10
4-year Bachelor Degree	Accounting	84	9
	Marketing	78	9
2-year Bachelor Degree	Accounting	405	46
(Day Program)	Marketing	299	34

Table 3.1. Sample Size If the Students. (Continued)

Education	Degree/Major	Population	Sample Size
2-year Bachelor Degree (Day Program)	Information Technology	131	15
2-year Bachelor Degree (Part Time Program)	Accounting	289	33
	Marketing	115	13
	Management	113	13
	Total	3,145	355

3.3 Research Tool

The tool used in this research is the questionaire that is designed in conjunction with concepts, theories and related research findings concerning with fluency of internet usage. The questionaire is constructed in one set which could be divided into two parts as follows:

Part I is about student's profile. It is concern about the background of Rajamangkala Institute o f Technology, Phranakorn Sri Ayutthaya Wasugri Campus's students.

Part II is concerned about the student fluency of internet usage. It is divided into 4 aspects: Knowledge about internet equipment and service, knowledge about information search on internet, knowledge for chatting on internet and knowledge about E-mail usage. Each consists of question to be responsed : to got one mark if the response is right and zero if it is wrong.

There are three levels of criteria. They are:

The mark range 8 - 10: For rating the student fluency of Internet usage in high level.

26

The mark range 7 — 5: For rating the student fluency of Internet usage in medium

level.

The mark range 4 - 0: For rating the student fluency of Internet usage in low level.

3.4 Development of Questionnaire

The researcher writes a questionnaire by means of the study of textbooks, theory,

document, and related research concerning with students fluency of Internet usage

which are used as a guideline for the development of the questionnaire.

(1)   Questionnaire is submitted to the advisor for inspection and approval.

(2)   Questionnaire must be inspected in terms of vadility and reliable. The

        suggestions could be derived from the advisor, for the corrective action

        upon those suggestions.

(3)   The researcher amends the questionnaire accordingly and t hen once m ore

        presents it to the advisor so that the researcher could hone a more effective

        research tool.

(4)   The completed questionnaire is sent out to the sample group.

3.5 Testing Method

The questionnaires is tried out the validity and reliability.

(1)   Content validity of questionaire were checked clearity, concreteness,

        conciseness and correctness by thesis c ommittee advisor. The suggestions

        are derived for the improvement, corrections and focusses on content

        validity.

(2)   Reliability. The questionaires are tested by 30 similar population with the

        sample group and analized with SPSS from Windows Version10, the alpha

        is .774.

3.6 Data Collection

Questionaires are sent out the sample group of different major subject students. The return questionaires are as the following table.

Table 3.2. Data Collection.

Education	Degree/Major	Sample size	Number/ Percentage of Collected
Diploma Degree	Accounting	56	49 (87%)
	Marketing	50	44 (88%)
	Secretary	15	14 (95%)
	Finance	20	16(80%)
	Business Computer	32	29 (90%)
	Tourism	10	9 (89%)
4-year Bachelor Degree	Accounting	9	8 (91%)
	Marketing	9	8 (85%)
2-year Bachelor Degree	Accounting	46	43 (93%)
(Day Program)	Marketing	34	31 (92%)
	Information Technology	15	13 (86%)
2-year Bachelor Degree	Accounting		
(Part Time Program)	Marketing	33	32 (97%)
	Management	13	12 (93%)
		13	12(94%)
	Total	355	320 (90%)

3.7 Data Analysis

The collected questionnaires are analyzed using the following steps:

(1)   Editing: Researcher will check the completeness of the questionnaires and sort out incomplete questionnaires separately.

(2)   Coding: All complete questionnaires will be coded according to a predetermined set of criteria.

(3)   Compiling: The questionnaires that already coded will be compiled by using SPSS Windows Versionl 0 program as a tool in the enumeration of frequency and the calculation of percentage.

(4)   Analyzing: Data analysis uses the following statistics.

    (a)   Percentage to analyze the outcome indicating the level of student fluency of each aspect.

    (b)   Chi-square to find the relationship between independent and dependent variables.

3.8 Research Variable

Independent variables: are gender, age, education, internet learning, internet experience and internet frequency usage.

Dependent variables: are fluency of internet usage divided into 4 aspects : knowledge about internet equipment and service, knowledge about information search on internet, internet knowledge for chatting and knowledge about E-mail usage.

3.9 Hypotheses

(1)   Gender has relationship with the fluency of Internet usage.

(2)   Age has relationship with the fluency of Internet usage.

(3)   Education has relationship with the fluency of Internet usage.

(4)   Internet learning has relationship with the fluency of Internet usage.

29

(5)   Internet experience has relationship with the fluency of Internet usage.

(6)   Internet usage frequency has relationship with the fluency of Internet usage.

```
┌────────────────────────────────┐
│         A Gender               │
│         A Age                  │
│         A Education            │
│         A Internet Learning    │
│         A Internet experience  │
│         A Internet usage frequency │
└────────────────────────────────┘
```

Fluency of Internet Usage
-Knowledge about internet equipment and service.
-Knowledge about information search on internet.
-Internet knowledge for chatting.
-Knowledge about E-mail usage.
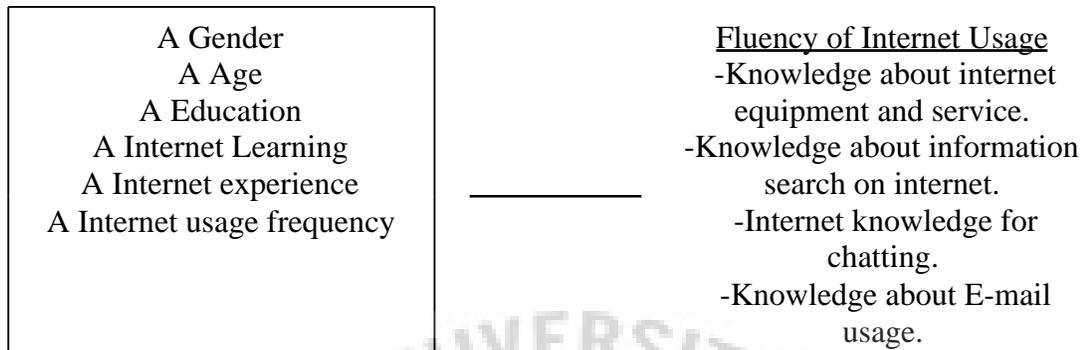
Figure 3.1. Research Concept Framework.

3.10 Statical Methology of Relationship Analysis

Chi-Squares: X^2 is used to find relationship of variables. The significance (sig.) is determined at .05. If the value of probability is less than the determined significance, the hypotheses are accepted, so it shows that the independent and dependent variables have relationship. In the opposite side, if the value of probability is more than the determined significance, the hypotheses are rejected, so it shows that the independent and dependent variables have no relationship.

The value of Chi-Square show the relationship between independent and dependent variables. If the value of Chi-Square are more, the more it is related. If the value of Chi-Square are less,the less it is.

IV. DATA ANALYSIS

An analysis is an important part of the project. It intends to summarize the data, give indications about the association between variables, as well as to test the differences of outcomes variables of the sample. There are many ways for data analysis depending on the questions being asked and the data summary. After the data was gathered by the questionnaire, which were returned in full and it was analyzed with the Statistic Package for the Social Sciences Program (SPSS). Percentage and average rating scale showed the results.

4.1 General Information

279 students, 87.2%

Man
Woman
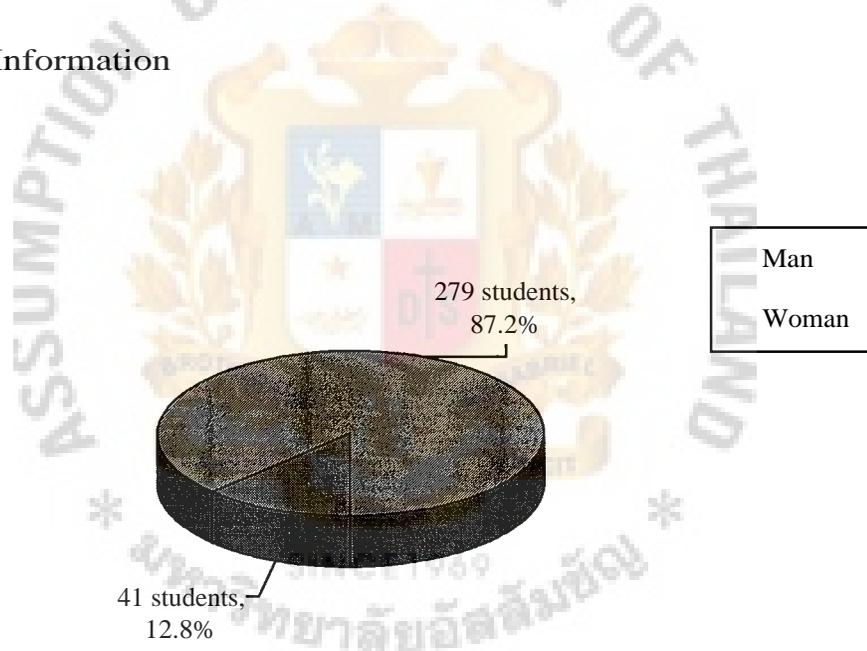
41 students, 12.8%

Figure 4.1. Students Profile on Gender.

Figure 4.1. Showing, the most gender is woman, there are 279 students with 87.2 in percentage, and least gender is man, 41 students, 12.8 percentage, who response the questionaires.
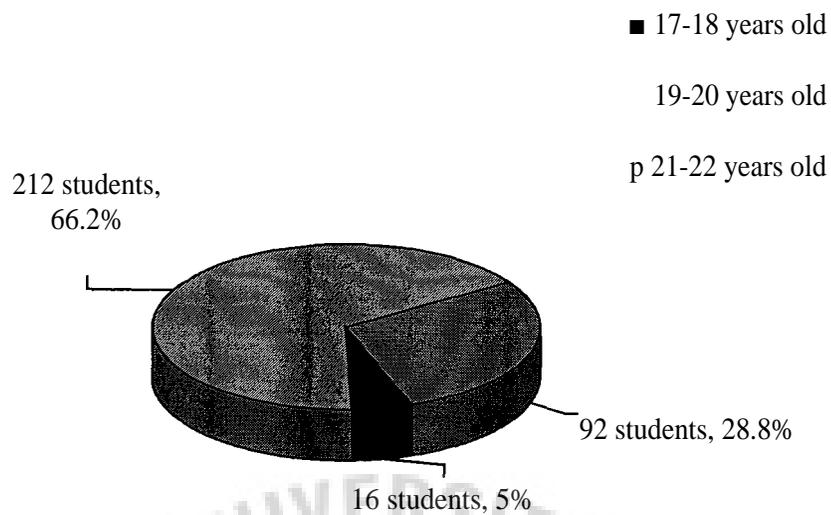
Figure 4.2. The Age of the Sample Group.

Figure 4.2. Showing, the most students are 19-20 years old, 212 students with 66.2 in percentage. The less are 21-22 years old, 92 students with 22.8 in percentage and the least, 17-18 years old which are 16 in number with 5.0 in percentage.

Figure 4.3. Showing, the most of the sample group study in diploma level that is 163 students with 50.9 in percentage.There are 81 students which is 25.4 percentage, who study in 2-year Bachelor (Part time program), and 58 students with 18.1 in percentage, who study in 2-year Bachelor (Day program). The least of the sample group study in 4-year Bachelor Degree that is 18 students with 25.4 in percentage.

58 students,
18.1%

163 students,
50.9%

81 students,
25.4%

18 students,
5.6%

Diploma Level

II 2-year Bachelor Degree (Day program)

■ 2-year Bachelor Degree (Part time program)

■ 4-year Bachelor Degree
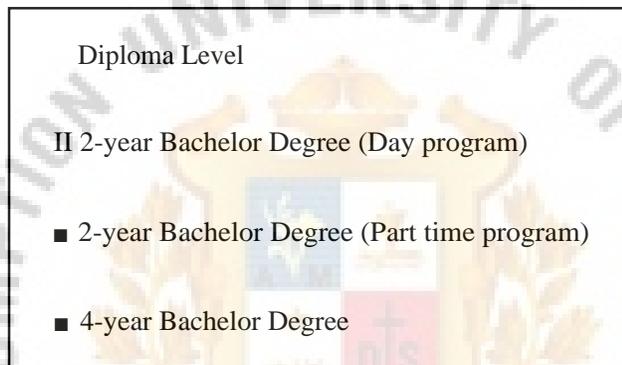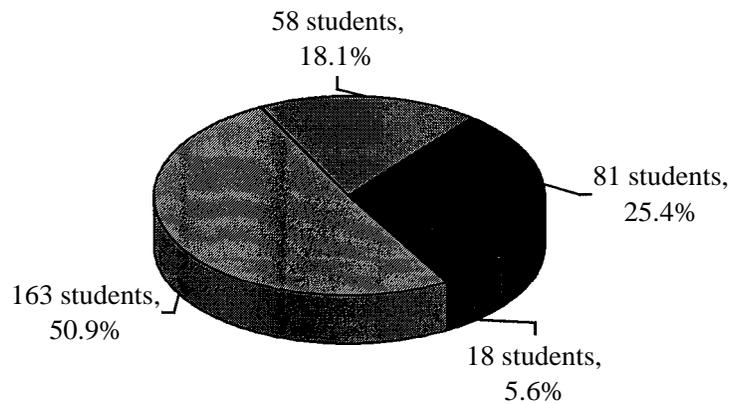
Figure 4.3. Educational Background of the Sample Group.

Figure 4.4. Showing, the most sample are Accounting major samples, 78 students

and 24.3 in percentage, response the questionaires. It is followed by Marketing major

which is 52 samples with 16.3 in percentage. Management major is the least samples,

13 students with 4.1 in percentage.

50 students,   14 students,
15.6%   4.4%

43 students,
13.4%

43 students,
13.4%

14 students,
4.4%

18 students,
5.6%

28
students,
8.8%

52 students,
16.3%

10
students,
3.1%

78 students,
24.3%

■ Accounting Degree

■ Secretary Degree

■ Marketing Degree

Ⅱ Finance Degree

■ Business Computer Degree

■ Tourism Degree

   Majoring in Accounting

El Majoring in Marketing

■ Majoring in Information Technology

MI Majoring in Management

Figure 4.4. The Major Subjects of the Sample Group.

Figure 4.5. Showing, the most samples group learn how to use Internet from friends, that is 116 students with 26.2 in percentage The less samples learn it from school, 111 students with 34.7 in percentage. The least samples learn how to use Internet from family, 38 students and 11.9 in percentage.

34
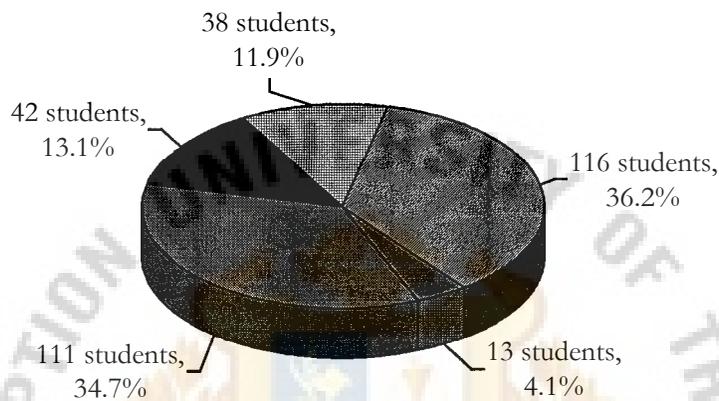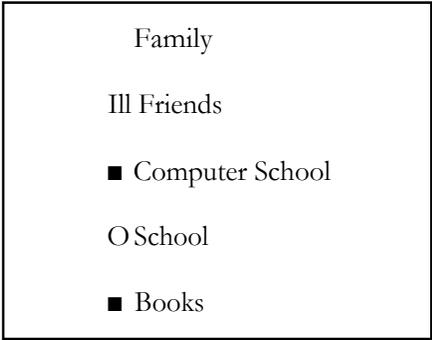
Figure 4.5. The Way of the Sample Group to Search How to Use Internet.

Figure 4.6. Showing, most of the sample group have 1 — 2 year(s) experience of Internet usage, there are 146 students with 45.6 in percentage. The following is less than 1 year, 97 students with 30.3 in percentage. The least of the sample group have more than 4 years experience of Internet usage, there are 12 students and 3.8 in percentage.

®Less than 1 year	
1 - 2 year(s)	
113 —4 years	
®More than **4** years	

12 students, 3.8%

65 students, 20.3%

97 students, 30.3%
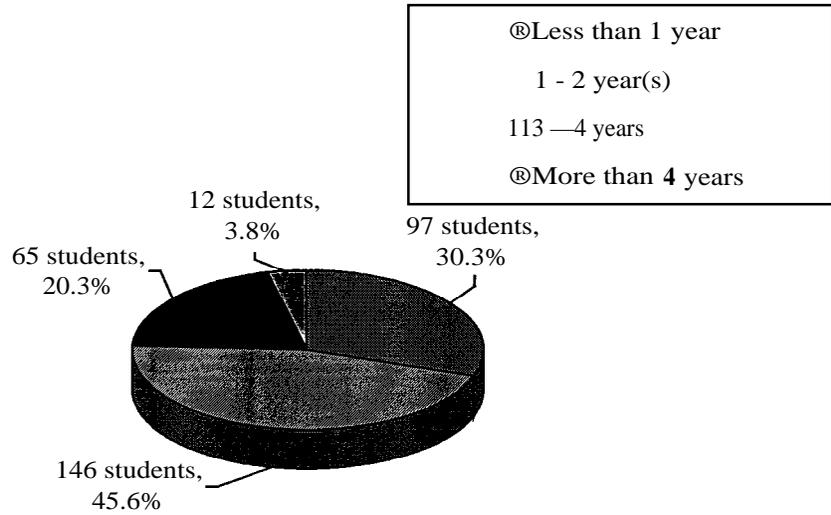
146 students, 45.6%

Figure 4.6. Student Experience of Internet Usage.

■ **Computer at home**
IN The institute's computer
® The department's computer
Internet cal?

133 students, 41.6%

14 students, 4.4%

61 students, 19%
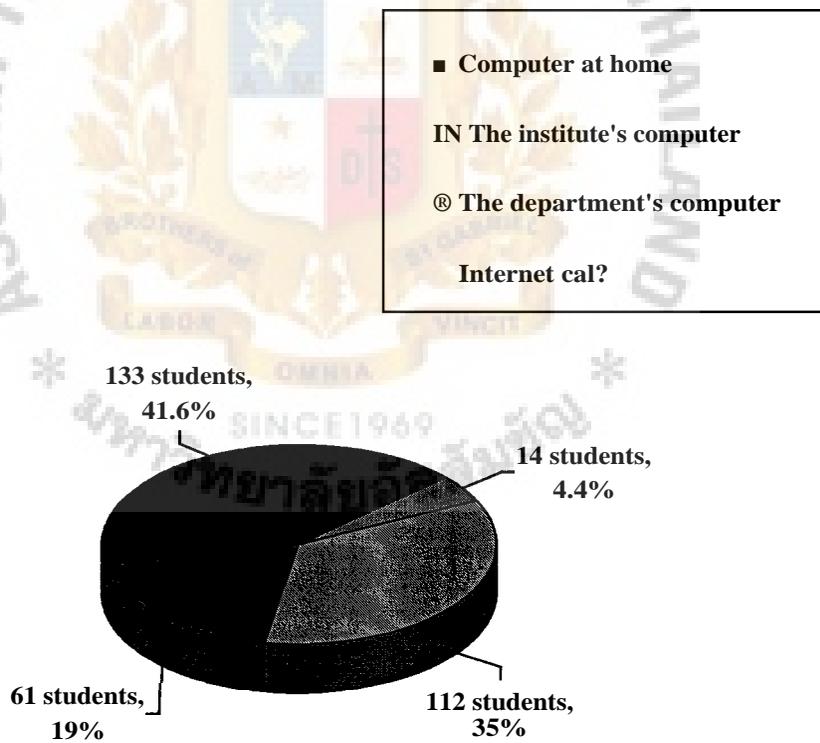
112 students, 35%

Figure 4.7. The Site of Sample Internet Usage.

Figure 4.7. Showing, the most students use computer at the campus, 133 students with 41.6 in percentage. The less use at Internet café, 112 students with 35.0 in percentage. The least use at the department's computer which is 14 students with 4.4 in percentage
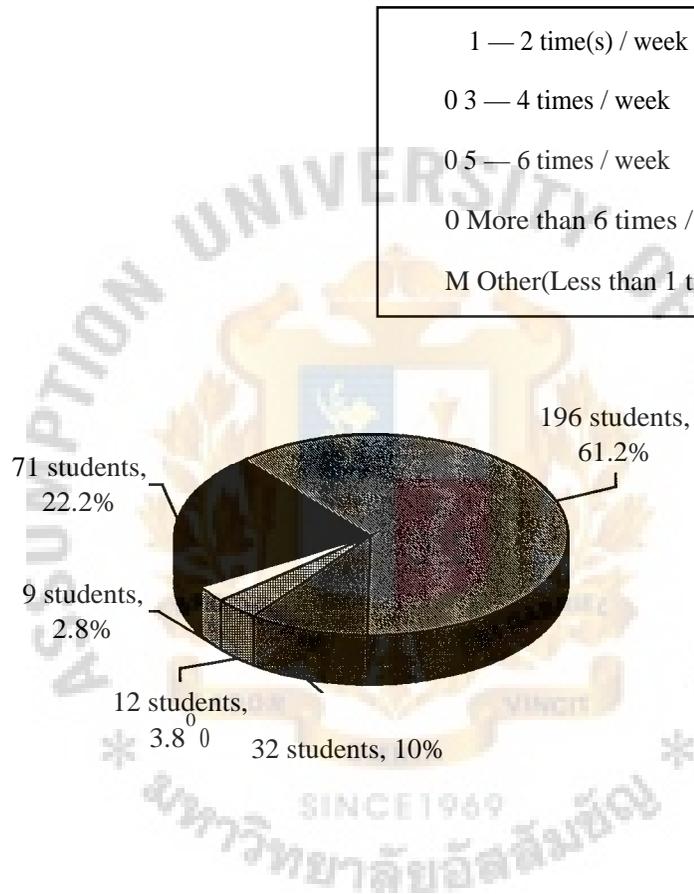
Figure 4.8. The Frequency of Students Internet Usage.

Figure 4.8. Showing, the most students spend 1 — 2 time(s) a week to use Internet that is 196 students with 61.2 in percentage. The less do less than one time a week, 71 students with 22.2 in percentage and the least do more than 6 times a week, 9 students with 2.8 in percentage.
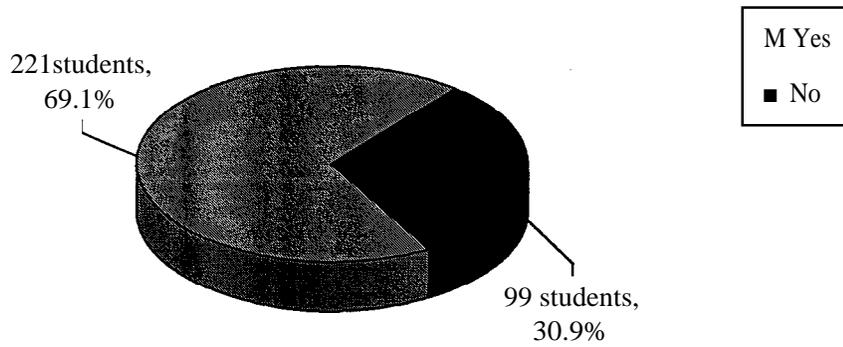
Figure 4.9. Internet Usage of Students in Their Study.

Figure 4.9. Showing, the most of students use Internet to aid their study, the amount of them is 221 with 69.1 in percentage. The following do not use Internet to aid their study, there are 99 students and 30.9 in percentage.
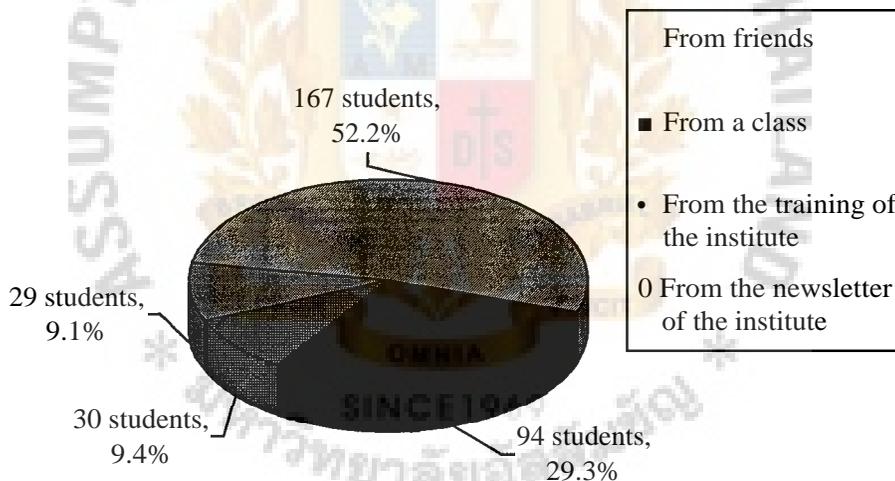
Figure 4.10. The Communication of Providing Internet Service in the Institute.

Figure 4.10. Showing, the most of students get information of providing internet service in the institute from friends, the amount of them are 167 students with 52.2 in percentage. The less from class, the amount is 94 students with 24.3 in percentage and the least from the newsletter of the institute, there are 29 students and 9.1 in percentage.

| World Wide Web service |
| ■ Electronic Mail service |
| El Chats and Usenet service |
| ■ Other (Games, Download) |

133 students, 22.8%

295 students, 50.6%

11 students, 1.9%
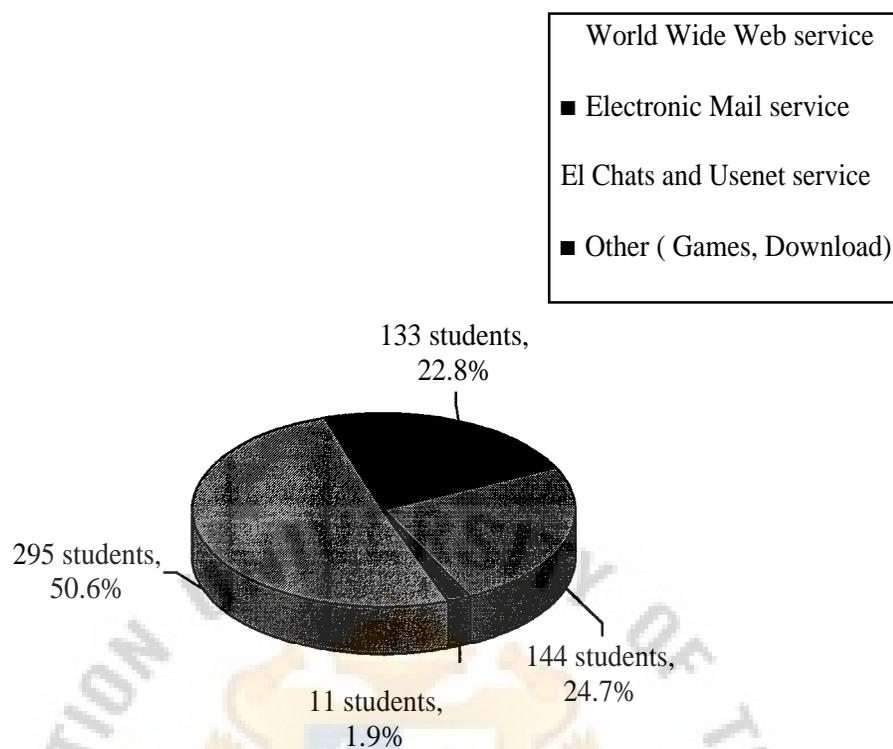
144 students, 24.7%

Figure 4.11. Services Used by Sample Group.

Figure 4.11. Showing, the most students use World Wide Web service, there are 225 students with 50.6 in percentage. The less are Chats and Usenet service which are 144 students with 24.7 in percentage and the least are Games and Download, 11 students with 1.9 in percentage.

Figure 4.12. Showing, the most students understand computer network that connects to network world wide for information communication, the amount is 284 students with 88.8 in percentage. The less understand, Computer network that is used to search information, the amount is 20 students with 6.2 in percentage and the least understand, Computer network that is used to send electronic mail instead of post mail, the amount is 8 students with 2.5 in percentage and also the same amount of students who understand, Computer network that links to the institute's network.

39

8 students, 2.5%   8 students, 2.5%   20 students, 6.2%

284students, 88.8%
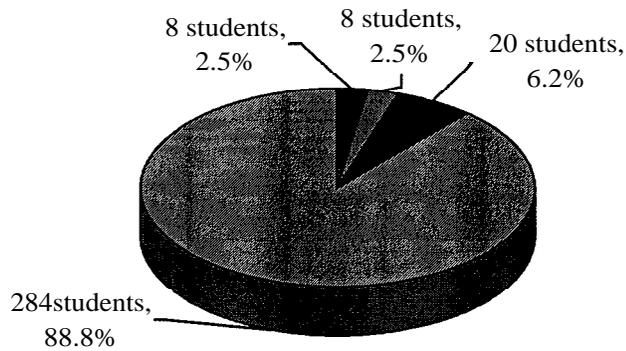
■ Computer network that links to the institute's network

• Computer network that you use to send electronic mails instead of post mail

■ Computer network is usedto search information

Computer network that connects to network world wide for information communication

Figure 4.12. The Understanding of Internet Definition.

Figure 4.13. Showing, most students understand that Internet is quick and low cost to use as a mean of communication, telephone and fax have higher cost and have limited and distance, the amount is 232 students with 72.5 in percentage. The less understand that you can directly talk on the telephone, Internet needs computer to connect to the network, the amount is 69 students with 21.6 in percentage. The least do that telephone and fax service fees are cheaper than Internet, the amount is 5 students with 1.5 in percentage.

40

5 students,
1.5%

232 students,
72.5%

69 students,
21.6%

14 students,
4.4%
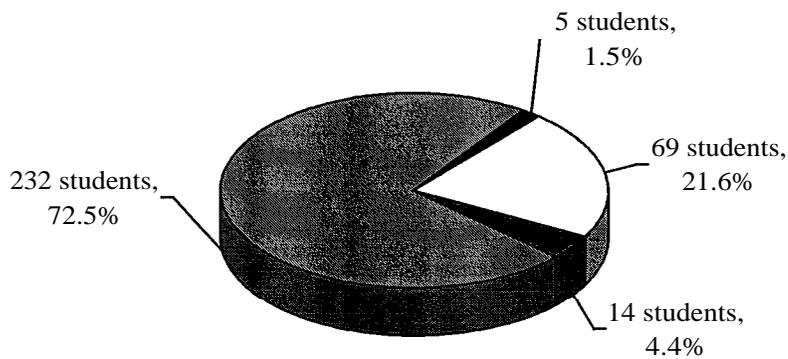
❏ You can directly talk on the phone. Internet needs computer to connect to the network.

■ Internet is more modern. Telephone and fax are not in fashion.

• Internet is quick and low cost to use as a mean of communication. Telephone and
fax have higher cost and have limited time and distance.

■ Telephone and fax service fees are cheaper than Internet.

Figure 4.13. Student Understanding about the Different between the Present
Telecommunication and Internet.

Figure 4.14. Showing, the most students understand that Internet is a two way

communication and can be various, the amount is 123 students with 38.4 in percentage.

The less choose that Internet is a one way communication and a two way

communication and can be various, the amount is 108 students with 33.8 in percentage.

The least understand that Internet is a one way communication, the amount is 6 students
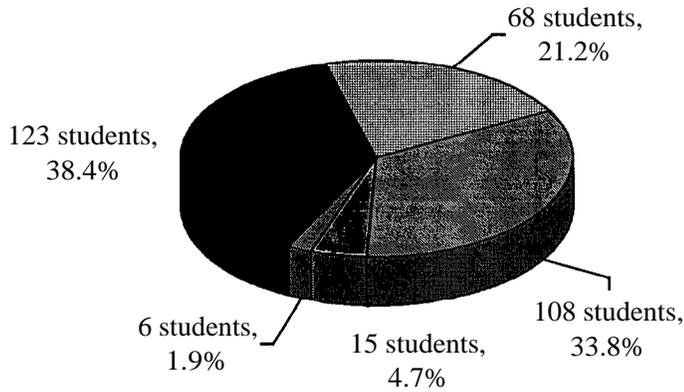
with 1.9 in percentage.

Figure 4.14. Students Understanding of Internet Communication.

Figure 4.15. Showing, the most students select Internet Explorer to send electronic mail, the amount is 191 students with 59.7 in percentage. The less choose Outlook Express, Netscape Mail, Eudora, the amount is 98 students with 30.6 in percentage. The least do Netscape Navigator, the amount is 7 students with 2.2 in percentage.

42

0 Internet Explorer

❑ Outlook Express, Netscape
Mail, Eudora

■ Netscape Navigator

II Pirch, ICQ

191 students,
59.7%

24 students,
7.5%

7 students,
2.2%
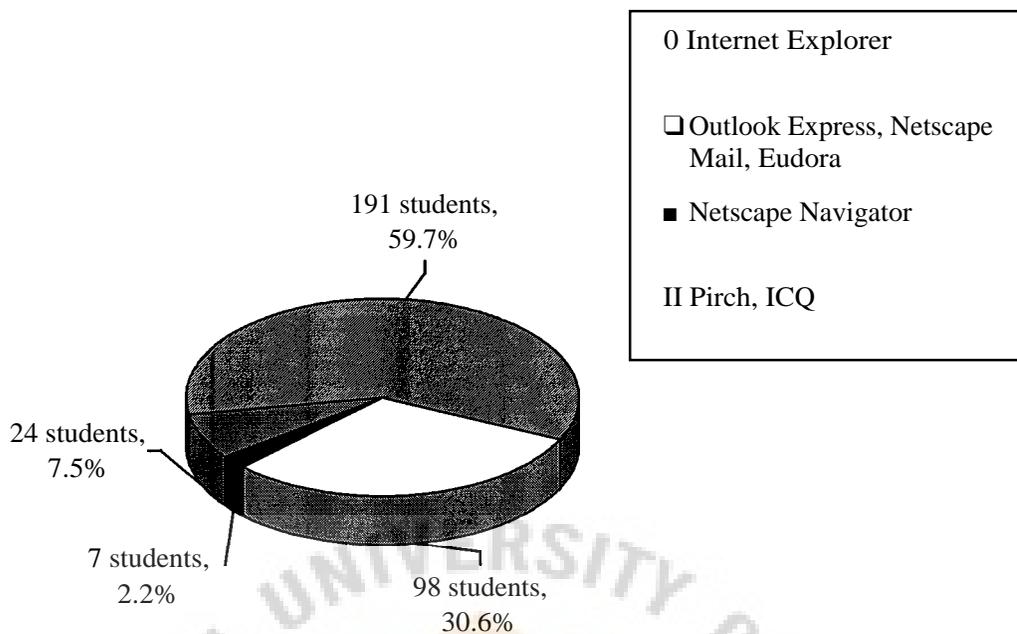
98 students,
30.6%

Figure 4.15. Students Understanding of Program Selection to Send
Electronic Mail.

■ Pirch

❑ ICQ

■ Internet Explorer

El Outlook Express

269 students,
84.1%

25 students,
7.8%

3 students,
0.9%
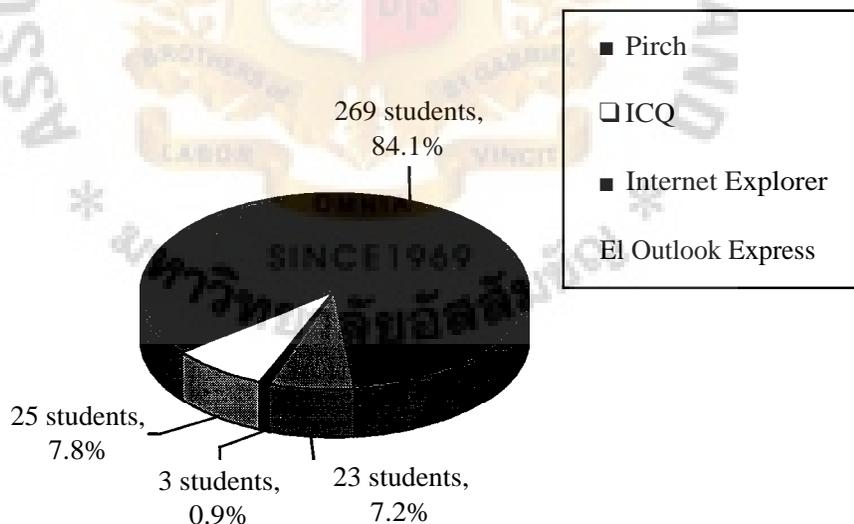
23 students,
7.2%

Figure 4.16. Student Selection of Program Used Searching for Information in
the Various Libraries of the World.

43

Figure 4.16. Showing, the most students select Internet Explorer to search for information in the various libraries of the world, the amount is 269 students with 84.1 in percentage. The less select ICQ, the amount is 25 students with 7.8 in percentage and the least choose Pirch, the amount is 3 students with 0.9 in percentage.
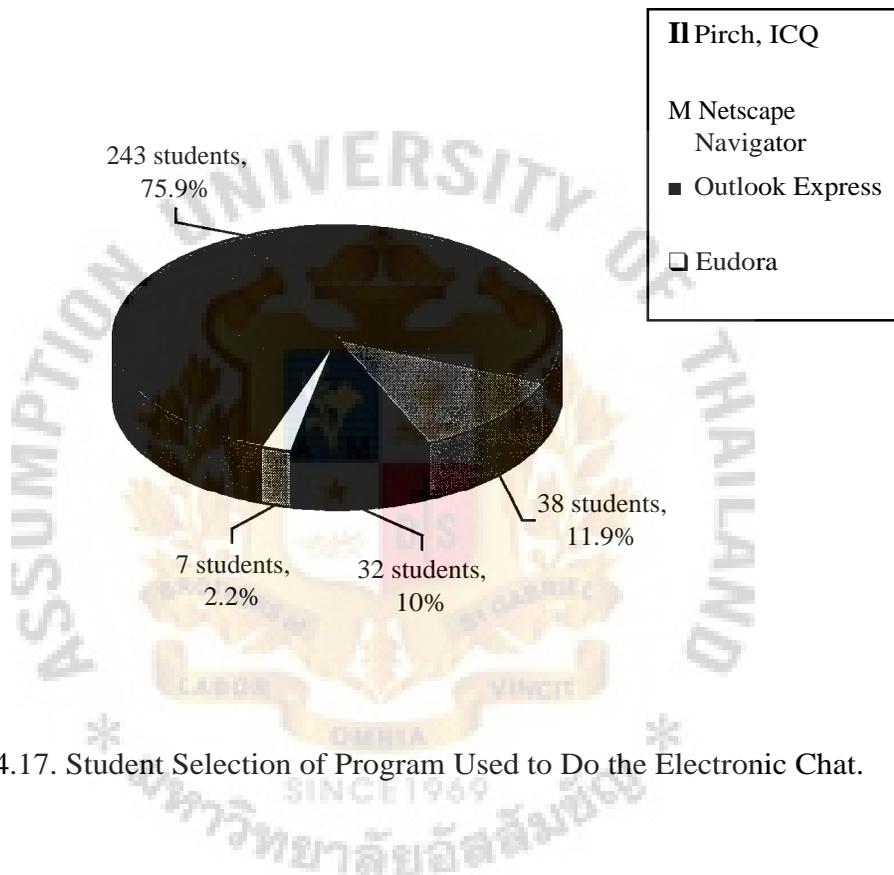
Figure 4.17. Student Selection of Program Used to Do the Electronic Chat.

Figure 4.17. Showing, the most students select Pirch and ICQ to do the electronic chat, the amount is 243 students with 75.9 in percentage. The less choose Netscape Navigator, the amount is 38 students with 11.9 in percentage and the least choose Eudora, the amount is 7 students with 2.2 in percentage

204 students,
63.8%

11 students,
3.4%

32 students,
10%

73 students,
22.8%

■ **Modem and computer**

■ **Modem, telephone line and computer**

13 Modem, telephone line, computer and

O **Modem, telephone line, computer, Internet**
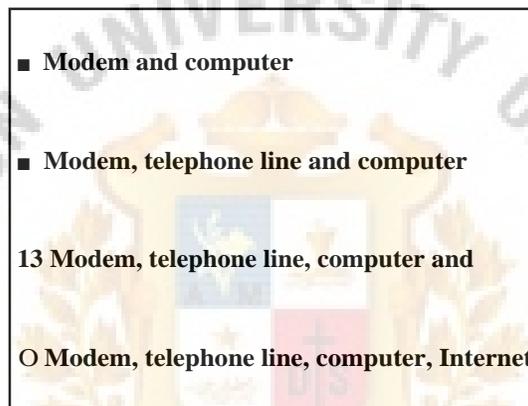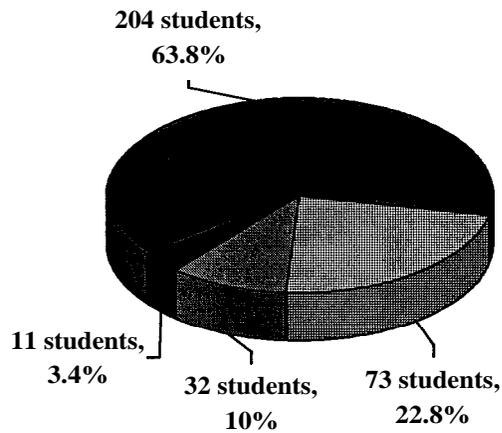
Figure 4.18. Equipment Required in Order to Connect Internet Network.

Figure 4.18. Showing, the most students require modem, telephone line and computer, the amount is 204 students with 63.8 in percentage. The less, modem, telephone line, computer and Internet account, the amount is 73 students with 22.8 in percentage. The least, Modem and computer, the amount is 11 students with 3.4 in percentage.

Figure 4.19. Showing, the most students can connect to Internet by Internet providers, the amount is 143 students with 44.7 in percentage. The less can do by TOT,

the amount is 121 with 37.8 in percentage and the least, by Internet Café, the amount is 6 students with 1.9 in percentage.

■ Internet Cal?

El Communication
   Authority of Thailand

M Internet providers

El TOT
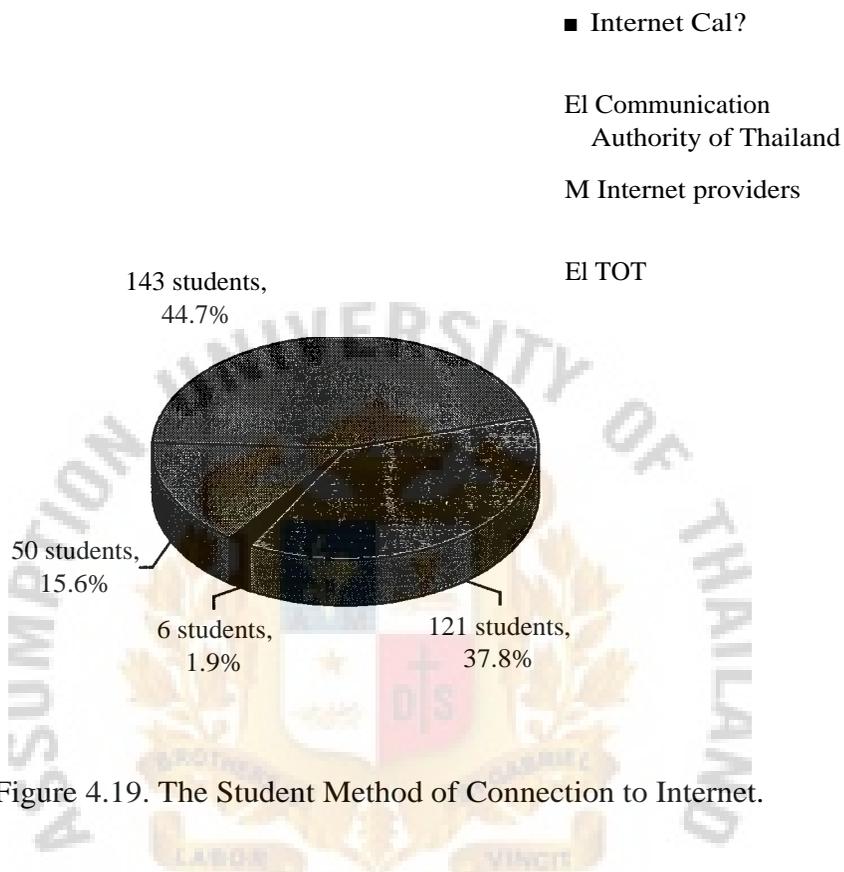
Figure 4.19. The Student Method of Connection to Internet.

The result from the open ended questions, the students commented the pros and cons of Internet as following table:

Table 4.1. Student's Comment.

Comment	Frequency	Sequence
The pros of intern& :		
(1) Internet can help to search for all kind of information from various websites.	42	4
(2) Information from Internet is modern, fast and comfortable.	96	1

Table 4.1. Student's Comment. (Continued)

Comment	Frequency	Sequence
(3) Internet is the way to communicate around the world.	50	2
(4) Internet is the best channel to search education information.	22	6
(5) Internet helps to save time and cost in communication.	43	3
(6) Surfing on internet is a good way of using leisure time.	31	5
The cons of interne :		
(1) Nowadays, Internet has more sex/inappropriate websites.	74	1
(2) Inappropriate usage of Internet can have negative effects on students.	69	2
(3) Using Internet while having class can distract students from their study.	66	3
(4) Internet is overly commercially used.	58	4

4.2 Knowledge of Student's Fluency in Internet Usage.

Table 4.2. Sample Group Knowledge about Internet Equipment and Service.

Knowledge about Internet Equipment and service	Right		Wrong	
	Amount	Percentage	Amount	Percentage
-Can you access to Internet via home telephone line?	266	83.1	54	16.9
-Modem is an unimportant equipment in order to connect to Internet.	65	20.3	255	79.7
- TOT provides Internet service and controls Internet network in Thailand.	188	58.7	132	41.3

47

Table 4.2. Sample Group Knowledge about Internet Equipment and Service.
(Continued)

Knowledge about Internet Equipment and service	Right		Wrong	
	Amount	Percentage	Amount	Percentage
- You will receive USERNAME and PASSWORD when you register to an Internet provider.	298	93.1	22	6.9
- Modem changes telephone signal to the signal that computer can receive ?	285	89.1	35	10.9
- You can use fax machine to connect to Internet instead of modem.	118	36.9	202	63.1
- Using Internet via notebook is faster than laptop.	164	51.3	156	48.8
- Internet cafés are authorized by Communication Authority of Thailand to provide Internet service.	185	57.8	135	42.2
- Telephone line is the faster way to connect to Internet.	208	65.0	112	30.5
- The most experience Internet equipment is modem.	194	60.6	126	39.4

From the result o f t he right answer of item 21 — 30, the sample group, 298 in number with 93.1 in percentage, have knowledge about Internet equipment and service by receiving username and password when they register to an Internet provider. On the contrary only 22 samples with 6.9 in percentage, the least sample, choose the wrong answer, they do not know that they will receive username and password when they register to an Internet provider. The less sample group, 285 in number with 93.1 in percentage, know that modem changing telephone signal to the signal that computer can

receive and the 1 east s ample group, 65 in number and 20.3 in percentage, think that modem is an unimportant equipment in order to connect to Internet. But the most sample group, 255 in number with 79.7 in percentage, choosing the wrong answer of this item understand that modem is important equipment in order to connect to Internet. The less sample group, 202 in number with 63.1 in percentage, choosing the wrong answer of using fax machine to be able to connect to Internet instead of modem. It means that they understand that fax machine can not be used to connect to Internet instead of modem.
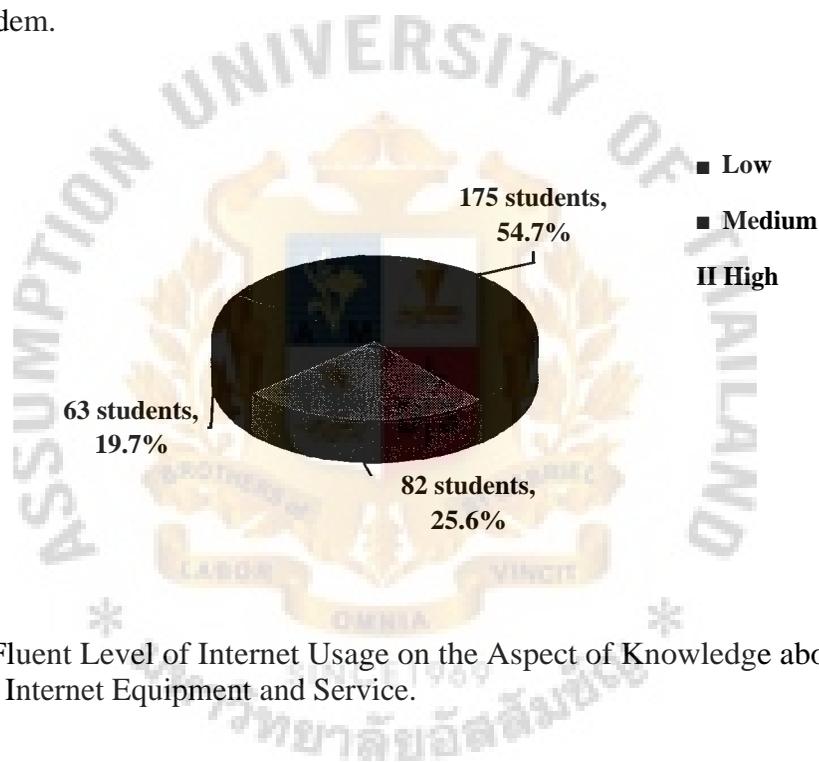
Figure 4.20. Fluent Level of Internet Usage on the Aspect of Knowledge about Internet Equipment and Service.

Figure 4.20. Showing the fluency of student Internet usage which appears that most samples have the fluency of Internet usage on knowledge about Internet equipment and service in medium level for 175 students which is 54.7 percentage. There are 82 students, 25.6 percentage, who have the fluency in high level and the least is 63 students, 19.7 percentage, who have that in low level.

Table 4.3. Sample Group Knowledge about Information Search on Internet.

Knowledge about Internet search on Internet.	Right		Wrong	
	Amount	Percentage	Amount	Percentage
-Web browser is a program used to search information on the website.	296	92.5	24	7.5
-Internet Explorer is a web browser program.	258	80.6	62	19.4
-WWW. Stands for World Wide Web Waiting.	88	27.5	232	72.5
-Website information consists of both text and pictures.	275	85.9	45	14.1
-Website is the world's biggest source of information and library and contains all kind of information.	280	87.5	40	12.5
-Hyper Text Markup Language (HTML) is a program used to search information on Internet.	134	41.9	186	58.1
-Uniform Resource Locator (URL) is a reference to Internet on World Wide Web on Internet.	245	76.6	75	23.4
-Transfering the file from another computer to your own computer is called " Uploading ".	176	55.0	144	45.0
-Domain name server is a reference of the computer connected to Internet such as yahoo.com, ayutthya.com, etc.	245	76.6	75	23.4
-Domain name like Internet.th.com means that Internet is in Thailand (th) and it is a commercial company (com).	261	81.6	59	18.4

From result, most samples, 296 in number with 92.5 in percentage, choosing the right answer understand that web browser is a program used to search information and only 24 samples, 7.5 in percentage, choosing the wrong number, do not think like that. The less samples, 280 in number with 87.5 in percentage, know that website is the world's biggest source of information and library contains all kind of information. The least samples, 88 in number with 27.5 in percentage, choosing the right answer understand that WWW. Stands for World Wide Waiting. On the contrary, the most samples, 232 in number with 72.5 in percentage, choosing the wrong answer for this item, they do not think that WWW. Stands for World Wide Waitng. In addition, the less samples, 186 in number with 58.1 in percentage, choosing the wrong answer, they understand that Hyper Text Markup Language (HTML) is a program used to search information on Internet.
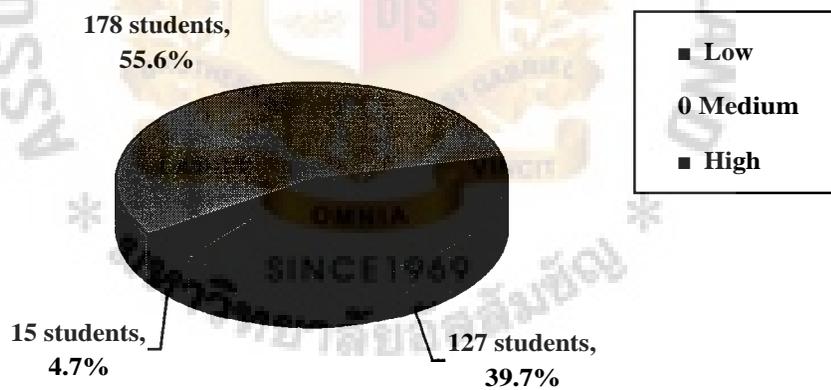

Figure 4.21. Fluent Level of Internet Usage on the Aspect of Knowledge about
Information Search on Internet.

Figure 4.21. Showing the fluency of student Internet usage which appears that most samples have the fluency of internet usage on knowledge about information search on Internet in medium level for 178 students which is 55.6 in percentage. There are 127

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students, 39.7 percentage, who have the fluency in high level and the least is 15 students, 4.7 percentage, who have that in low level.

Table 4.4. Sample Group Knowledge about Internet for Chatting.

Internet knowledge for chatting	Right		Wrong	
	Amount	Percentage	Amount	Percentage
-Chatting through Internet is to type and exchange text message via computer.	288	90.0	32	10.0
-You can choose the person you would like to chat with either by individual or group.	298	93.1	22	6.9
-While chatting on Internet you cannot use other Internet website eg. E-mail, website.	114	35.6	206	64.4
-Nowadays, you can also talk via Internet like on telephone.	247	77.2	73	22.8
-You have to get permission from TOT in order to chat on Internet.	166	51.9	154	48.1
-Pirch and ICQ are the popular chat partner while you are chatting.	276	86.2	44	13.8
-You can send files to your chat partner while you are chatting.	285	89.1	35	10.9
-In order to chat via Internet, you have to register to the Internet provider first	201	62.8	119	37.2
-Only university students and teachers are allowed to chat on Internet.	252	78.8	68	21.3
-Those under 18 years old are not alloweded to chat on Internet.	255	79.7	65	20.3

From the result, most of samples, 298 in number with 93.1 in percentage, choose the right answer, they understand that they can choose the person they would like to chat with either by individuals or group. But the least samples choosing the wrong answer, 22 in number with 6.9 in percentage, do not think so. The less samples, 288 in number with 90.0 in percentage, chatting through Internet is to type and exchange text message via computer and the least samples, 144 in number with 35.6 in percentage, while chatting on Internet they cannot use other Internet websites eg. E-mail, website. In addition, the most samples choosing the wrong answer, 119 in number with 37.2 in percentage, do not think that in order to chat via Internet, you have to register to the Internet provider first. The less, 154 in number with 48.1 in percentage, do not think that they have to get permission from TOT in order to chat on Internet.
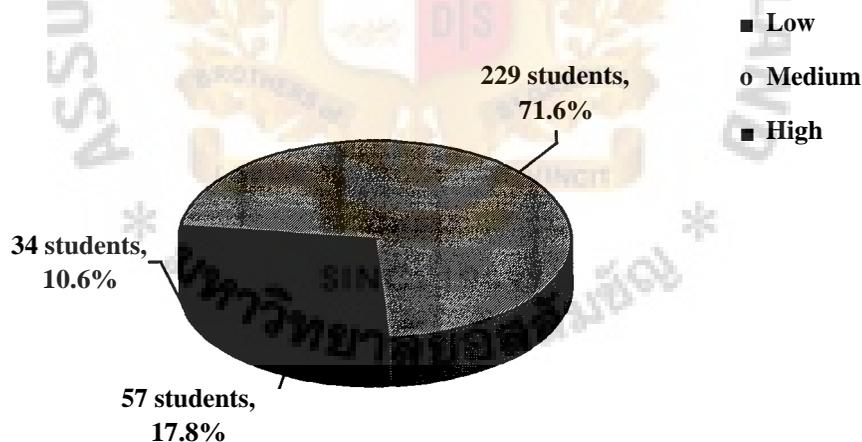
Figure 4.22. Fluent Level of Internet Usage on the Aspect of Knowledge for Chatting on Internet.

Figure 4.22. Showing the fluency of student Internet usage which appears that most samples have the fluency of Internet usage on knowledge for chatting on Internet in medium level for 229 student which is 71.6 in percentage. There are 57 students, 17.8

percentage, who have the fluency in high level and the least is 34 students,10.6

percentage, who have that in low level.

Table 4.5. Sample Group Knowledge about E-mail Usage.

Knowledge about E-mail usage	Right		Wrong	
	Amount	Percentage	Amount	Percentage
-It costs 10 Baht to send an E-mail.	231	72.2	89	27.8
-It takes longer time to send an E-mail than a normal postal mail.	253	79.1	67	20.9
-The postman delivers your E-mails.	245	76.6	75	23.4
-An E-mail needs E-mail addresses which i s compared t o p ostal a ddresses of the sender and the recipient.	296	92.5	24	7.5
-There is a limit number of E-mail and time frame to send E-mail each day.	204	63.8	116	36.6
-You can send E-mail to many recipients at the same time like chain letter.	262	81.9	58	18.1
-You can create an E-mail address via Yahoo, Hotmail, Kero Mail, etc. for free	257	80.3	63	19.7
-Stamp (2 Baht) is used an payment for an E-mail.	235	73.4	85	26.6
-You can change E-mail addrress or create many E-mail address at the same time.	249	77.8	71	22.2
-You can send E-mail to the receiver's postal address.	218	68.1	102	31.9

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From the result, most of samples, 296 in number with 92.5 in percentage, know that an E-mail needs E-mail addresses which is compared to postal addresses of the sender and recipient but the least sample, 24 in number with 7.5 in percentage, do not know about that. The less 262 in number with 81.9 in percentage, know that they can send E -mail t o m any recipients a t the s ame time 1 ike c hain letter. The least samples choosing the right answer, 204 in number with 65.8 in percentage, know that there is a limit number of E-mail and time frame to send E-mail each day, but the most samples choosing the wrong answer do not think so. In addition, the less ones choosing the wrong answer, 102 in number with 31.9 in percentage, do not know that they can send E-mail to the receiver's postal address.
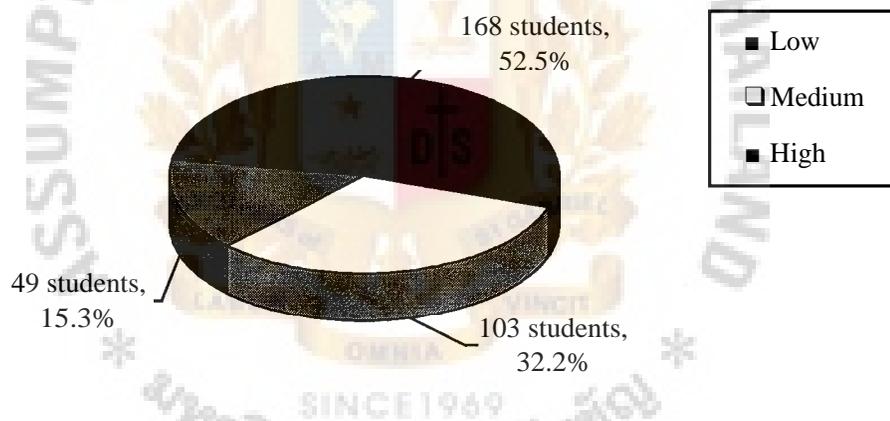
Figure 4.23. Fluent Level of Internet Usage on the Aspect of Knowledge about E-mail Usage.

Figure 4.23. Showing the fluency of student Internet usage which appears that most samples have the fluency of Internet usage on knowledge about E-mail fluency in low level for 168 students which is 52.5 in percentage. There are 1 03 students, 3 2.2 percentage, who have the fluency i n medium level and the least i s 4 9 s tudents, 1 5.3 percentage, who have that in high level.

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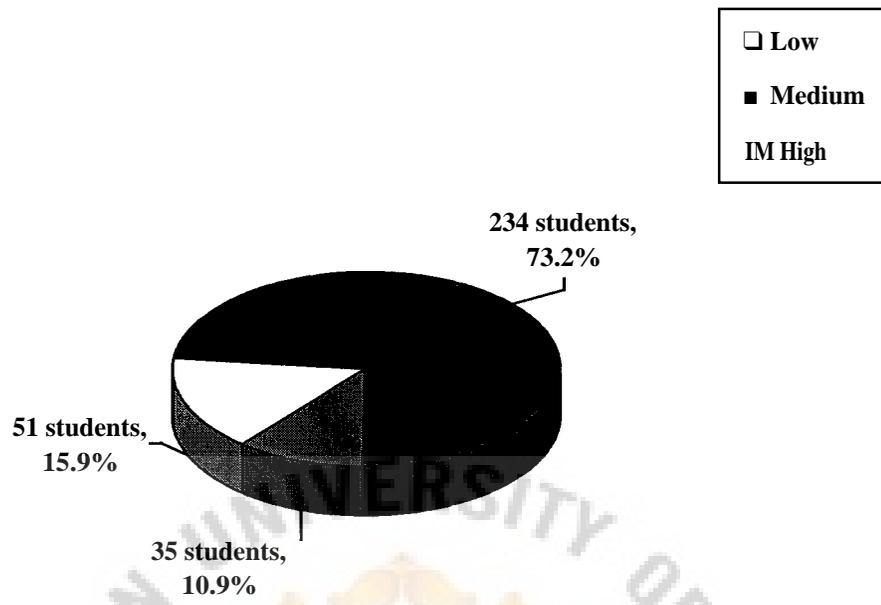
Figure 4.24. Fluent Level of Internet Usage on All of Aspects.

Figure 4.24. Showing the fluency of student Internet usage which appears that most samples have the fluency of internet usage on all aspects in medium level for 234 students which is 73.2 in percentage. There are 51 students, 15.9 percentage, who have the fluency in low level and the least is 35 students, 10.9 percentage, who have that in high level.

4.3 Result from Hypotheses

The result of the analysis will be described in detail to answer the statement of hypothesis are one by one as follows:

Hypotheses 1.: Gender has relationship with the fluency of Internet usage.

Table 4.6. The Relationship between Gender and Fluency of Internet Usage.

Gender	Fluency of Internet usage		
	Low	Medium	High
Man	5 (12.2%)	18 (43.9%)	18 (43.9%)
Woman	17 (6.1%)	150 (53.8%)	112 (40.1%)
Total	22 (6.9%)	168 (52.5%)	130 (40.6%)

$$X = 2.722 \text{ sig.} = .256$$

From the result, gender has no relationship with the fluency of Internet usage of significance at .05.

Hypotheses 2.: Age has relationship with fluency of Internet usage.

Table 4.7. The Relationship between Age and Fluency of Internet Usage.

Age	Fluency of Internet usage		
	Low	Medium	High
17 — 18 years old	1 (6.3%)	7 (43.8%)	8 (50.0%)
19 —20 years old	18 (8.5%)	111 (52.4%)	83 (39.2%)
21 —22 years old	3 (3.3%)	50 (54.3%)	39 (42.4%)
Total	22 (6.9%)	168 (52.5%)	130 (40.6%)

$$X = 3.386 \quad \text{sig.} = .495$$

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From the result, age has no relationship with the fluency of Internet usage of significance at .05.

Hypotheses 3.: Education has relationship with the fluency Internet usage.

Table 4.8. The Relationship between Education and Fluency of Internet Usage.

Educational Level	Fluency of Internet usage		
	Low	Medium	High
Diploma Level	16 (9.8%)	91 (55.8%)	56 (34.4%)
2-year Bachelor Degree (Day program)	0 (0%)	20 (34.5%)	38 (65.5%)
2-year Bachelor Degree (Part time program)	6 (7.4%)	48 (59.3%)	27 (33.3%)
4-year Bachelor Degree	0 (0%)	9 (50%)	9 (50%)
Total	22 (6.9%)	168 (52.5%)	130 (40.6%)

$X = 23.838$ sig. $= .001$

From the result, Education has relationship with fluency of Internet usage of significance at .05.

Hypotheses 4.: Internet learning has relationship with the fluency of Internet usage.

Table 4.9. The Relationship between Internet Learning and Fluency of Internet Usage.

Internet learning	Fluency of Internet usage		
	Low	Medium	High
Family (Parents, brother, sister, relatives)	3 (7.9%)	12 (31.6%)	23 (60.5%)

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Table 4.9. The Relationship between Internet Learning and Fluency of Internet Usage.
(Continued)

Internet learning	Fluency of Internet usage		
	Low	Medium	High
Friend	7 (6%)	66 (56.9%)	43 (37.1%)
School	9 (8.1%)	60 (54.1%)	42 (37.8%)
Books	3 (7.1%)	24 (57.1%)	15 (35.7%)
Total	22 (6.9%)	168 (52.5%)	130 (40.6%)

X = 10.325 sig. = .243

From the result, Internet learning has no relationship with the fluency of Internet usage of significance at .05.

Hypotheses 5.: Internet Experience has relationship with the fluency of Internet usage.

Table 4.10. The Relation between Internet Experience and Fluency of Internet Usage.

Experience of internet usage	Fluency of Internet usage		
	Low	Medium	High
Less than 1 year	12 (12.4%)	61 (62.9%)	24 (24.7%)
1— 2 year (s)	6 (4.1%)	77 (52.7%)	63 (43.2%)
3 — 4 years	4 (6.2%)	25 (38.5%)	36 (55.4%)
More than **4** years	0 (0%)	5 (41.7%)	7 (58.3%)
Total	22 (6.9%)	168 (52.5%)	130 (40.6%)

X = 22.128 sig. = .001

From the result, Internet experience has no relationship with the fluency of

Internet usage of significance at .05.

Hypotheses 6.: Internet usage frequency has relationship with the fluency of Internet

usage.

Table 4.11. The Relationship between the Frequency of Internet Usage and the
Fluency of Internet Usage.

Internet usage frequency	Fluency of Internet usage		
	Low	Medium	High
1 — 2 time(s) / week	15 (7.7%)	104 (53.1%)	77 (39.3%)
3 — 4 times/week	1 (3.1%)	17 (53.1%)	14 (43.8%)
5— 6 times / week	2 (16.7%)	4 (33.3%)	6 (50%)
More than 6 times / week	0 (0%)	4 (44.4%)	5 (55.6%)
Other (Less than 1 time / week)	4 (5.6%)	39 (54.9%)	28 (39.4%)
Total	22 (6.9%)	168 (52.5%)	130 (40.6%)

$X = 5.265$ sig. $= .729$

From the result, the Internet usage frequency has no relationship with fluency of

Internet usage of significance at .05.

V. CONCLUSIONS AND RECOMMENDATIONS

In this chapter we will discuss the results of "Student's fluency of Internet usage". This project uses 355 samples of sample size of the student of Ramangkla Institute of Technology Pranakorn Sri Ayutthaya Wasukri Campus. The objectives of this project was to establish the intention to bring knowledge that we have got from the project to improve the study programs and technology and system management and increase the student's fluency of technology usage; especially on the Internet technology.

5.1 Conclusions

The survey indicates that from the hypothesis of this research two hypotheses can be accepted and four hypothesis cannot be accepted.

The hypothesizes that can be accepted are;

First hypothesis is "Education, the most important factor of student's fluency, has relationship with fluency of Internet usage." Education level is the most important for student at upcountry province. The level of education is the opportunities for student to reach the technology. High level of education in campus or schools have to provide the technology for student research and matching with the study programs. The differentiation of degree with diploma level and bachelor level is the bachelor has to emphasize learning program more than diploma. The diploma learnt for students are able to do job. But the bachelor level has trained students to be the manager. Therefore, the managers are able to operate his work with high skills.

The second one is "Internet Experience has relationship with fluency of Internet usage." "Get an experience get more fluency" the students that are interested to learning Internet technology are the one, who want to gain an experience of Internet usage. If they want to get Internet more skill, they will try to get more experience.

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Therefore the experience is the second one important factor that related with the Internet usage fluency.

The third hypothesis that cannot be accepted is "Gender, has no relationship with the fluency of Internet usage". The man and women have free to do many things. Thus, the gender factor will not be concerned about the fluency of Internet usage." The women that has the high knowledge level, they got to be an expert person; important as the man who has high knowledge level, they got to be the professors too. So this factor has no relationship because it has no measurement standard method.

The hypothesis that cannot be accepted is;

"Age has no relationship with fluency of Internet usage." At Rajamangkla Institute of Technology Pranakorn Sri Ayutthaya Wasukri c ampus t here are students that have the similar age or background. Some choose to get bachelor degree, someone choose diploma, in order to differentiate method of learning. It is no affect on result of student's fluency.

The hypothesis that cannot be accepted is;

"Frequency has no relationship with fluency of Internet usage" Frequency does not mean cover an experience. Most people use the program that they have more skill. It does not mean they will understand to use the other Internet usage skills too. So the frequency factor has no relationship.

The hypothesis that cannot be accepted is;

"Internet learning has no relationship with fluency of Internet usage" If the learning does not relate with their interest, the results become no more skill. Most students might not get experience anymore if it was over responsibility of their courses. They have a lot of work to do, so they have not enough time to be concerned with it.

And most of students at Wasukri campus has no individual computer, affects lost opportunities to learn.

5.2 Recommendations

All the above present the good points and the bad points that is analyzed from all factors provided in this research. I would like to recommend the ways that campus should be established for their students.

According to the result of the research, the student's fluency level of Internet usage on all of aspects appear medium. Each aspect concerned on Internet equipment knowledge, knowledge about information search on Internet, knowledge about chatting, and knowledge about e-mail. Most students h ave knowledge about Internet equipment and service especially on Internet connection tool (username, password). But the other aspect, student had not enough skill for best using utilities of technology. May be it is the cause of technology handing. The student can not reach the technology. The cost, staff knowledge, staff confliction, policy confliction, management vision, economics, right time, right condition is the internal and external factors that affect educational improvement.

According to the result of site of sample Internet usage, the most students of sample size use computer at the campus, 133 students with 41.6 percentage. The least use at the department's computer which is 14 students with 4.4 in percentage. The most students use World Wide Web service with 50.6 in percentage. The less are Chats and Usenet Service with 24.7 in percentage and the least are Games and Download with 1.9 in percentage. The most students use Internet to aid their study. For student research or student project. Find the answer for their learning. Refered to Dr. Panomkorn Juncharoen (Kasetsart University, Interview) student might not seek an experience more

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than their responsibility, because a lot of subjects were handled. (Philip Doty. 1995) researching the planning and assessment for the result of network utility and condition for usage, user's fluency level of network utility usage appear low and deficient assessment. Students have a frequency level that appears high with chatting communication among the group, but the system is unable to support them the bandwidth and network connection channel. Dr. Kraichit Thuntimate (Chulalongkorn University, Interview) said that: "The university had the least efficient assessment.

The frequency of students Internet usage, from the result most students spend 1 — 2 time(s) a week to use Internet. The least do more than 6 times a week. Refer to Archarn Santhiti Patchararungrueng (Kasetsart University, Interview) "If it was a subject in the courses, when it have been completed students might not be concerned on it anymore. Depending on their self interest topic could be driving them to do."

From the result of the understanding of Internet definition, most students understand computer network that connects to world wide network for information communication, the least understand computer network that you use to send electronic mail instead of post mail. Student of each major understand Internet definition differently as to conform with the research o f n etwork utility usage of Dr. Pratheep Bunyatnopparath (King Mongkut's Institute of Technology at Ladkrabang, Interview), "we have to giving student to learning by doing and student must has a high fluent level of technology usage as more as telephone usage."

From the result of student's fluency in Internet usage about Internet equipment and service, the most sample group, have knowledge about Internet equipment and service by receiving username and password when they register to an Internet provider. On the contrary with 6.9 percentage, the least sample, they do not know that they will receive username and password when they register to an Internet provider.

From the result of student's fluency in Internet usage about information search on Internet, most samples, 92.5 in percentage understand that web browser is a program used to search information and only 7.5 in percentage do not think like that.

From the result of knowledge about Internet for chatting, most of samples with 93.1 in percentage understand that they can choose the person they would like to chat either by individuals or group. But the least samples with 6.9 in percentage do not think so.

From the result of knowledge about E-mail usage, most sample with 92.5 in percentage know that an E-mail needs E-mail addresses which compared to postal addresses of the sender and recipient but the lease sample with 7.5 in percentage do not know about that.

From the research showing the fluency of student Internet usage which appears that most sample have the fluency of Internet usage on all aspects in medium level. The relationship with the four aspects of Internet usage, all the results of it can guide the ways to manager know the method to use the technology utility, and adjust the courses that can motivate their students to achieve a goal that the manager would like them to be.

The ways to solve the problems, we have to re-organize or r edesign s ystem t o achieve the organization objective. Managers have to be concerned on the essential of the technology. Improve the education of information technology and information system in campus and to maximize technology utilization for their system. Using the system analysis and design concepts for guide planning. Finally I would like to conclude all Internet knowledge aspect solving should be to do as:

(1)   The Internet network bandwidth should support their student. When the channels concurrently used at the same time, it will affect to overload sharing. All system will be slow down and not smoothly to operate.

(2)   The technical terms should be included in the courses.

(3)   Guideline the source of information that is useful for study and research. It will motivate student to use the utility of Internet, rewards is the important thing that might drive students interest on it.

(4)   Set the objective o f t he organization. It w ill b e a guide for their ways to achieve the goal. Such as technology is the first point that campus concerns to training their students to be the expert.
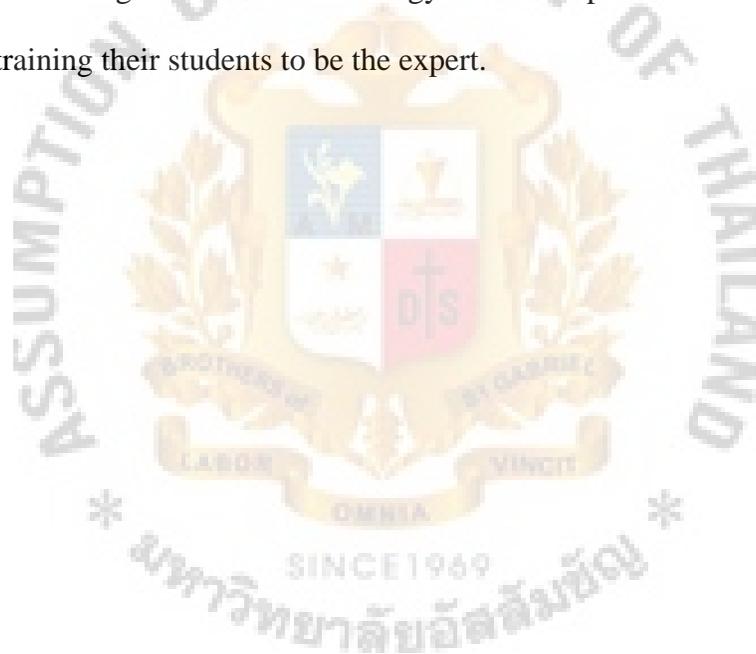
Questionaire : Measurement of internet usage of the students of Ratchamangala Technology Institute, Pranakorn sri Ayutthaya Wasukri.

Objective: The purpose of this questionnaire is to measure the level of internet knowledge of the students of Rajamongkla Technology Institute, Pranakorn Sri Ayutthaya W asukri tobeu sed a s a guideline t o s tudy how t o best adapt internet to teaching technique. This questionnaire does not aim specifically at any individual and will be confidential.

Please complete all the questions. Thank you for your cooperation.

Please mark between the blanket ( ) or fill in the provided blank.

1. Gender: ( ) Man.   ( ) Woman.

2. Age   years.

3. Education.

    ( ) 1. Diploma degree.

    ( ) 2. 2-year Bachelor degree (day program).

    ( ) 3. 2-year Bachelor degree (part time program).

    ( ) 4. 4-year Bachelor degree.

4. Degree/Major.

    ( ) 1. Accounting Degree.

    ( ) 2. Secretary Degree.

    ( ) 3. Marketing Degree.

    ( ) 4. Finance Degree.

    ( ) 5. Business Computer Degree.

    ( ) 6. Tourism Degree.

    ( ) 7. Majoring in Accounting.

        8. Majoring in Marketing.

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( ) 9. Majoring in Information Technology.

( ) 10. Majoring in Management.

6. Where or from who did you learn how to use internet?

( ) 1. Family (Parents, brother, sister, relatives).

( ) 2. Friends.

( ) 3. Computer school.

( ) 4. School.

( ) 5. Books.

6. Experience of internet usage

( ) 1. Less than 1 year.

( ) 2. 1 — 2 year(s).

( ) 3. 3 — 4 years.

( ) 4. More than 4 years.

7. Where do you use internet?

( ) 1. Computer at home.

( ) 2. The institute's computer.

( ) 3. The department's computer.

( ) 4. Internet café.

( ) 5. Others (please specify)_____

8. How many times a week do you use internet?

( ) 1. 1 — 2 time(s)/week.

( ) 2. 3 — 4 times/week.

( ) 3. 5 — 6 times/week.

( ) 4. More than 6 times/week.

5. Others. (please specify)_____

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9.   Do you use internet to aide your study?

( ) 1. Yes.

( ) 2. No.

10. How do you know that the institute provides internet service?

( ) 1. From friends.

( ) 2. From a class.

( ) 3. From the training of the institute.

( ) 4. From the newsletter of the institute

11. Which Internet service do you use? (can answer more than 1)

( ) 1. World Wide Web service.

( ) 2. Electronic Mail service.

3. Usenet service.

( ) 4. Others. (please specify)_____

12. You understand that Internet is ....

( ) 1. Computer network that links to the institute's network.

( ) 2. Computer network that you use to send electronic mails instead of post
         mails.

( ) 3. Computer network that is used to search information.

( ) 4. Computer network that connects to network world wide for information
         communication.

13. What is the difference between the present telecommunication (telephone, fax)

and Internet?

( ) 1. You can directly talk on the phone. Internet needs computer to connect
         to the network.

( ) 2. Internet is more modern. Telephone and fax are not in fashion.

( ) 3. Internet is quick and low cost to use as a mean of communication.

Telephone and fax have higher costs and have limited time and

distance.

( ) 4. Telephone and fax service fees are cheaper than internet.

14. Internet is a mean of communication that

( ) 1. internet is a one way communication.

( ) 2. internet is a two way communication and can be various.

( ) 3. internet is a fast way of sending information.

( ) 4. number 1 and 2 are correct.

( ) 5. Others (please specify)_____

15. Which program can send electronic mail?

( ) 1. Internet Explorer.

( ) 2. Outlook Express, Netscape Mail, Eudora.

( ) 3. Netscape Navigator.

( ) 4. Pirch, ICQ.

16. Which program is used to search for information in the various libraries of the

world?

( ) 1. Pirch.

( ) 2. ICQ.

( ) 3. Internet Explorer.

( ) 4. Outlook Express.

17. Which program can be used to do the electronic chat?

( ) 1. Pirch, ICQ.

( ) 2. Netscape Navigator.

( ) 3. Outlook Express.

( ) 4. Eudora.

18. Equipments that are required in order to connect to internet network are.....

( ) 1. Modem and computer.

( ) 2. Modem, telephone line and computer.

( ) 3. Modem, telephone line, computer and internet account.

( ) 4. Modem, telephone line, computer, internet account and fax machine.

19. You can connect to internet via....

( ) 1. Internet café.

( ) 2. Communication Authority of Thailand

( ) 3. Internet providers.

( ) 4. Telephone Authority of Thailand .

20. What are the pros and cons of internet?

…………………………………………………………………………………………………

…………………………………………………………………………………………………

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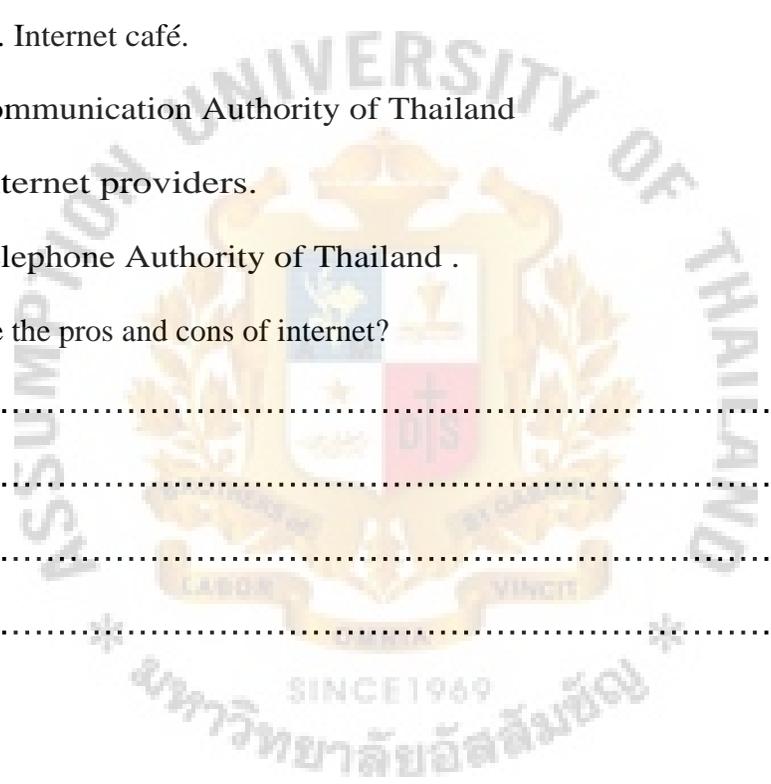
Knowledge about internet equipment and service

21. Can u access to Internet via home telephone line?

     ( ) Yes.   ( ) No.

22. Modem is an unimportant equipment in order to connect to internet.

     ( ) Yes.   ( ) No.

23. Telephone Authority of Thailand provides Internet service and controls internet

     network in Thailand.

     ( ) Yes.   ( ) No.

24. You will receive USERNAME and PASSWORD when you register to an internet

     provider.

     ( ) Yes.   ( ) No.

25. Modem changes telephone signal to the signal that the computer can receive?

     ( ) Yes.   ( ) No.

26. You can use fax machine to connect to internet instead of modem.

     ( ) Yes.   ( ) No.

27. Using internet via notebook is faster than laptop.

     ( ) Yes.   ( ) No.

28. Internet cafés are authorized by Communication Authority of Thailand to provide

     Internet service.

     ( ) Yes.   ( ) No.

29. Telephone line is the fastest way to connect to Internet.

     ( ) Yes.   ( ) No.

30. The most expensive internet equipment is modem.

     ( ) Yes.   ( ) No.

Knowledge about information search on Internet

31. Web browser is a program used to search information on the website.

    ( ) Yes.   ( ) No.

32. Internet explorer is a web browser program.

    ( ) Yes.   ( ) No.

33. WWW stands for World Wide Waiting.

    ( ) Yes.   ( ) No.

34. Website information consists of both text and pictures.

    ( ) Yes.   ( ) No.

35. Website is the world's biggest source of information and library that contains all kind of information.

    ( ) Yes.   ( ) No.

36. Hyper Text Markup Language (HTML) is a program used to search information on internet.

    ( ) Yes.   ( ) No.

37. Uniform Resource Locator (URL) is a reference to information on Website.

    ( ) Yes.   ( ) No.

38. Transferring the file from another computer to your own computer is called "uploading".

    ( ) Yes.   ( ) No.

39. Domain Name Server is a reference of the computer connected to Internet.

    ( ) Yes.   ( ) No.

40. Domain name like Internet.th.com means that internet is in Thailand (th) and it is a commercial company (com).

    ( ) Yes.   ( ) No.

Knowledge for Chatting

41. Chatting through Internet is to type and exchange text messages via computer.

     ( ) Yes.   ( ) No.

42. You can choose the person you would like to chat with either by individual or
    group.

     ( ) Yes.   ( ) No.

43. While chatting on Internet you cannot use other Internet websites eg. E-mail,
    website.

     ( ) Yes.   ( ) No.

44. Nowadays, you can also talk via Internet like on a telephone.

     ( ) Yes.   ( ) No.

45. You h ave t o get p ermission from T elephone Authority of Thailand in order to
    chat on Internet.

     ( ) Yes.   ( ) No.

46. Pirch and ICQ are the popular chat programs.

     ( ) Yes.   ( ) No.

47. You can send files to your chat partner while you are chatting.

     ( ) Yes.   ( ) No.

48. In order to chat via Internet, you have to register to the Internet provider first.

     ( ) Yes.   ( ) No.

49. Only university students and teachers are allowed to chat on Internet.

     ( ) Yes.   ( ) No.

50. Those under 18 years old are not allowed to chat on Internet.

     ( ) Yes.   ( ) No.

Knowledge about e-mail usage

51. It costs 10 Baht to send an e-mail.

    ( ) Yes.   ( ) No.

52. It takes longer time to send an e-mail than a normal postal mail.

    ( ) Yes.   ( ) No.

53. The postman delivers your e-mail.

    ( ) Yes.   ( ) No.

54. An e-mail needs e-mail addresses which is compared to postal addresses of the

    sender and the recipient.

    ( ) Yes.   ( ) No.

55. There is a limit number of e-mail and time frame to send e-mail each day.

    ( ) Yes.   ( ) No.

56. You can send e-mail to many recipients at the same time like chain letter.

    ( ) Yes.   ( ) No.

57. You can create an e-mail address via Yahoo, Hotmail, Kero Mail, etc. for free.

    ( ) Yes.   ( ) No.

58. Stamp (2 Baht) is used as a payment for an e-mail.

    ( ) Yes.   ( ) No.

59. You can change e-mail address or create many e-mail addresses at the same time.

    ( ) Yes.   ( ) No.

60. You can send e-mail to the receiver's postal address.

    ( ) Yes.   ( ) No.

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60. Till1V111150rilMilllOOLAM1S0111411.1111619.101111hcill1D1.1110AVA N117114

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