A STUDY ON THE PERCEIVED EFFECTS OF COMPUTERIZATION ON THE EMPLOYEES OF DEVELOPMENT BANK OF THE PHILIPPINES

An Undergraduate Thesis
Submitted in Partial Fulfillment
Of the Requirements
In Organizational Communications 200
(Organizational Communications Research)

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Second Semester, March 2000

ACKNOWLEDGEMENTS

This part of a book or, in this case, an undergraduate thesis is probably the least read section of any tome. To avoid being labeled a killjoy and to add pages to my masterpiece, however, I will enumerate the dozens of beautiful people who have, one way or another, inspired me to finish my thesis.

First of all my, Tita Amy. Words cannot begin to approximate my thanks. Thank you very, very much. Somebody up there probably likes me because He gave me you. We love you very, very much. Thank you!

My Mommy (the best mom in the world) and my Daddy.

Ryan, Janie, and Alouh.

My favorite Ninang, Tito Cesar, Auntie, Tita Lulu, JP, Carlo and Marcy.

Lola and Papa.

My bestfriend and high-school buddy Elay.

Mr. Manuel Valdez, AVP at the Strategic Planning Center of DBP and Chairman of TΩM Phil and my brods and sisses at TΩM namely: Voltz, Harry, Gaw, Ryan, Obeng, Vicelle, Kulot, Arvin, Angie, Mia, Docs, Cheng Leigh, Licelle, Bubbles, Nolan, Jhun C., Mark, Kojic, Reggie, Hans, Alexis, Magno, Don, Edward, Bot, Caste, Arvin, Melay, Keng, Leng, Michelle, Lizzie, Maizzie, Satur, Iper, Dennis, Mamarvin, Raine, Che B., Che-che R.,,Avi, Junnita and Niza Joyce.

The best adviser a guy could have, Prof. Ronald Henson.

Prof. Villar, Dr. Sarile, Mr. Sanchez, Prof. Agbayani, Prof Adeva, Prof. Romy, Prof. Novs and all the wonderful people at the DAC.

And last but definitely not the least, I give my thanks and gratitude to God, my Creator, without whom I'll probably just be a pile of dust.

ABSTRACT

The study was conducted to determine the advantages and disadvantages of computerization, the social and psychological environment of an office that has access to computers, as well as to know the factors that affect an employee's computing competence.

Subjects were forty-two employees of the Development Bank of the Philippines. Eighteen of the respondents were taken from the Accounting Department and twenty-four worked at the Strategic Planning Center of the said bank. A questionnaire was used to obtain data. Interviews with key people were also conducted.

To determine if significant differences in direct use of computers between managers and lower-level employees exist, chi-square analysis was used. The same method was used to find out if there is a difference in the level of operational problems experienced by younger and older employees of the company.

Results confirm that there are advantages and disadvantages in computing. Most of the advantages concern information retrieval, resource efficiency and easy access to data. Disadvantages concern operational and information problems.

Workers were also affected by information anxiety, time pressure concerned with their job, redundancy of work, and supervision of work. Due to computers, however, employees experience a raised sense of accomplishment with regard to their job.

Through statistical analysis, it was also confirmed that there was a difference in direct use of computers between managers and lower-level employees as well as the level of operational problems experienced by younger and older employees.

There is an evident need for further study to be done regarding the effects of computerization to employees and to the organization.

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CHAPTER I

INTRODUCTION

I. BACKGROUND OF THE STUDY

Man is fortunate to have an intellect that can conceptualize machines that are capable of enhancing his way of life. Prehistoric man's environment was considerably changed when he invented the wheel and the lever. The printing press enabled humanity to have easier access to information and education. The contrivance of the television, the radio, and the telephone during the early part of the 20th century enabled people to communicate quickly and efficiently. Today, an invention that is touted to be an extension of man's nervous system, the computer, is making its presence felt not only in our homes but in the workplace as well.

Computers have been a major cultural preoccupation since the 1980s and the story of its invasion has been told in the upbeat spirit of the times. The evolution of computers and Information technology (IT) is a driving force in virtually all areas of technological advance. Nowhere are the inputs more likely to be more profound, however, than in the nature of work, the organization, and management.

The computerized workplace is qualitatively different from its predecessors. Traditional office procedures will not work in an informated setting. For most organizations – in the future, if not today – the most crucial determinant in competition will be the processing and analysis of information, things that can be done faster and more efficiently if electronic technologies are used (Lucas, 5). An automated, informated environment is rapidly replacing the traditional office. The workforce is shifting from one that produces products to an entity that primarily manages information (Barner, 16). Knowledge workers - employees who deal with information through the use and application of sophisticated computer technologies, are more and more in demand compared to workers who failed to keep abreast with new technologies. Workers will need to learn new technological skills in order to avoid being stuck in technical obsolescence.

Electronic offices are commonplace. It is now natural to see computers in an employee's workstation. Management recognizes the importance of new technologies in upgrading their offices into firms that can compete in an age of information. They believe that firms that do not keep abreast of these technologies become stuck in applications and operations that are approaching obsolescence and whose competence is fast eroding (McKenney, x). Corporations such as American Airlines, bank of America, Frito Lay and American Hospital Supply/Baxter Travenol, for example, have designed systems that allowed them to move ahead of their competitors.

The introduction of IT in the workplace is an emotional experience (McKenney, 51). Information workers may see this as an advantage or a disadvantage. There are numerous books that discuss IT from a technical point of view. They, however, fail to answer or investigate the most important component of an IT system – the end-users. The full potential of advanced IT can only be realized if proper analyses of the end-users vis-à-vis computers take place. This is the main purpose of the study – to know the problems encountered by employees when using computers, to identify the benefits that an IT system may bring, and to investigate how computers affect an organization as a whole.

II. Background of the Organization

The Development bank of the Philippines, commits itself in partnership with others as a viable development financial institution that aims to influence and accelerate sustainable economic growth, through the provisions of medium and long term resources and the continued support of the Filipino people. Founded on June 14, 1938, the DBP has an authorized capital stock of P35 B and assets totaling P114, 767,899 as of 1998. Its role is to serve as a catalyst of development and technological advancement.

The DBP promotes the processes of development by widening linkages and performing multi-faceted roles. As a prime mover in this process, the bank maintains an active presence in the countryside and initiates programs in support of the government's thrust towards sustainable development.

III. STATEMENT OF THE RESEARCH PROBLEM

The main problem this study aimed to answer was:

- What are the perceptions of employees with regard to the effects of computerization in an organization?

The sub-problems of the study are the following:

a. What are the psychological and social scenarios in an office that has access to information technology?
b. What are the benefits and problems caused by computerization in terms of its effects to the employees and to the organization and its operations?
c. What are the factors responsible for the different perceptions of employees to computerization?

IV. OBJECTIVES OF THE STUDY

The study investigated how computers affected end-users in organizations in order to:

a. know the perceptions of employees to computerization by describing the characteristics of the respondents and whether these characteristics affect those perceptions

b. determine the advantages and disadvantages of computerization
c. discover how computers affect end-users and the organization, and
d. know how computers affect the social and psychological scenarios of an informated organization

V. HYPOTHESES OF THE STUDY

The study had the following as its hypotheses:

1. Ho: There is NO significant difference in the direct use of computers between managers and lower-level employees

   H1: There is a significant difference in the direct use of computers between managers and lower-level employees
2. Ho: There is NO significant difference in the level of operational problems encountered by employees belonging to different age brackets

   H1: There is a significant difference in the level of operational problems encountered by employees belonging to different age brackets

VI. VARIABLES OF THE STUDY

The study had the following as its variables:

Independent Variable

- Computerization

Dependent Variable

- Use of Computers
- Perceptions of the employees

  Advantages and disadvantages of using computers

  Impact of Computing

Intervening Variable

- Characteristics of the User

  Age

  Rank in the Organization

IV. SIGNIFICANCE OF THE STUDY

Literature discussing computer technologies, software, and hardware abounds in the market. The curious can have sufficient knowledge of computers by reading pamphlets, journals, and books that discuss IT from a supply-side point of view. Worthwhile explorations into the meaning of IT cannot be obtained

from an examination of the technology itself. It is also important to investigate how technology and employees will ultimately fit together.

A more effective means of understanding this "people-machine" relationship is by looking into future implications of the technology by investigating present applications in the workplace.

This study aimed to investigate the significance of computer technology by exploring human consequences in an organizational setting. Data gathered from this study will enable managers to know how information workers will react if placed in an electronic office. Recommendations will allow company decision-makers to find a formula on how employees and technology would best fit together. Moreover, managers may be able to know the benefits and problems IT may bring in terms of its effect on people, allow them to make projections from an employee's view point, and give them a sense of confidence that – with a knowledge of how employees feel about IT – putting people in an electronic environment would benefit an organization in the long run.

V. SCOPE AND LIMITATIONS OF THE STUDY

The research focused on the effects of computerization to end-users of employees belonging to the Accounting Department and the Strategic Planning Center of the Development Bank of the Philippines. Moreover, the study

discussed if using computers affects the operation and the administration of work at the said company.

It should be taken into account that the respondents belong to different departments that rely on computer-intensive skills. This will represents 80% percent of the total employees of the Accounting Department and 95% of the employee population of the Strategic Planning Center who have been in the company after the introduction of computers to the their operations. The data that were gathered, therefore are representative only of the said population. The researcher, however, deemed the respondents as competent personnel who were able to comply and helped realize the objectives of the research.

It was not possible to present a theory that encompassed the issues of the study. Earlier research in computer systems technology, organizational theories, as well as psychology were be used and reviewed in order to answer the questions of the study.

Also, the study did not focus on the immediate effects of computing to the organization. It did not delve into other computer issues such as e-mail, invasion of privacy, and the effects of computers to the body (e.g. eye discomfort, wrist injuries, and back injuries).

CHAPTER II

REVIEW OF RELATED LITERATURE

I. EFFECTS OF COMPUTERS TO THE EMPLOYEE & TO THE ORGANIZATION

The computer provides the office worker with several advantages; it can easily be used and it has a number of programs that can dramatically increase the productivity of the user (Lucas, 9). The computer has also been known to open new possibilities for creative expression and satisfaction at work (Scott Morton, 232).

Despite the stereotype that workers are technology fearing, there is evidence that workers have welcomed the technology. John Naisbitt and Peter Aburdene in their book "Reinventing the Corporation" wrote that in a study conducted in the United States of America by the Public Agenda Foundation, three-fourths of those interviewed felt that information technology made their jobs free and interesting rather that more routine. These workers also indicated that the subsequent challenges brought about by IT motivated them to perform better (Naisbitt and Aburdene, 101).

Computers allow clerical workers to have more time for other tasks. Since software allows employees to do previously tedious jobs at a smaller amount of

time, workers are free to explore other creative avenues. With more time available to the support personnel, it is then possible to consider "job enhancement" for the secretary and clerks especially in areas that require personal contact (Strassman, 42).

Probably the most important benefit that a computer system brings is the ability to retrieve data and the ease of access to information. Computerization increases the intellectual content of work across organization levels (Zuboff, 61). It not only automates but also generates large quantities of information previously unavailable to the organization. New pieces of information can be easily and timely retrieved (Danziger, 75). "The local processing power of the workstation combined with the power of the computer in the communication networks represents a capital investment to improve the productivity of individuals whose jobs primarily involve processing information (Lucas, 4)."

The application of IT in the workplace has been known to produce negative reactions in information workers. In the book "Future Work" by Charles D. Winslow and William L. Bramer, these unexpected forms of resistance to technology have been classified into five, namely (Winslow and Bramer, 97 – 107):

a. cultural resistance – a person's cultural context – his sex, nationality, socio-economic class, and formal education – instills an orientation to his work that is a part of that work

b. generational resistance – older workers have a tendency not to embrace new technologies as enthusiastically as younger workers
c. habit resistance – workers have a bias to revert to old methods of doing business (e.g. reading reports on paper rather than on a visual display unit)
d. educational background resistance – employees would feel that they do not have the necessary training and experience needed to operate systems, and
e. systems design resistance – employees are confused with the programs provided by management and by systems designers

Winslow and Bramer also noted that the development of information technology did not take note of the fact that workers are uncomfortable with computers due to the vast amounts of information these machines bring. They stated that all forms of automation and database activity have been geared toward making access to information easier, making more of this information available. This gave workers a deluge of information that they had a hard time adjusting to. According to Winslow and Bramer, "We have unprecedented access to information, but what good is access unless we know what to do with it? How do we fit it into our jobs? How do we use it to support our performance?"

In the 1980 study made by Turner on the impact of computers on jobs and job content, he concluded that computer based systems tend to make clerical

jobs more demanding because of increased workload and pace of work. He also stated that tension and greater job strains have produced more anxiety among information workers. His study also noted that high productivity, mental strain symptoms, and job dissatisfaction among employees were associated with the use of computers. Job stress appeared to be the primary mechanism by which the use of computers affected office workers.

A computer on an employee's workstation can also cause a dependency of the worker to the machine. In the book "Information Payoff: The Transformation of Work in the Electronic Age," Paul Strassman noted that emotional bonds are formed between frequent network users and their personal computers. Strassman found out that when a computer is removed from an employee's workstation, the worker in question will exhibit anger and diminished effectiveness; he will exhibit irrational efforts to get the machine back.

IT will also widen the responsibilities of the information worker. An American researcher named Peter S. Drucker said that, "In an automated process, the worker switches from being an operator to being a programmer. This new job design will in turn force employers to constantly retrain more personnel. Education will be a main factor in a company in which technology is imperative.

In an article by Richard Saul Wurman in the Reader's Digest titled "Overcome 'Information Anxiety'" technology intensive devices such as the computer can also cause the following difficulties:

a. Causing work related injuries - Reported cases of work-related injuries caused by video-display terminals range from varicose veins and vision problems to miscarriages and stress related diseases. Two of the most debilitating disorders are Carpal Tunnel Syndrome (CTS), the compression of nerves and blood vessels in the wrist that cause numbness and pain; and Myofacial Pain Syndrome (MPS), a form of soft-tissue rheumatism that affects certain muscles and ligaments in the shoulder, neck, back, and arms.

b. Making life sedentary - Nature engineered our body for hunting and gathering. Technology forced us to sit in an office all day exercising nothing but our hands and mouths. Lack of exercise as a result of a sedentary lifestyle has been linked to serious health problems such as heart disease and adds ugly pounds to our physique. Sitting can also cause joints and muscles to stiffen.

c. Overloading the brain with too much information. To optimally function in today's society, employees are forced to assimilate a body of data that is expanding and changing by the second. People are obsessed by the acquisition of knowledge because of the belief that more of it equates to more power. However, as machines that aid in accessing information becomes readily available (computers, photocopiers, fax

machines) the possibility that we can process all of the data it provides is absurd. The stress then develops as you begin to notice that you are lagging behind and you outdistance yourself trying to keep pace.

d. Making us think less - Computer software provides programs that make formerly mentally taxing tasks easier. Graphics and statistics programs make the user less creative and less innovative. Normal brain functions such as memory are also used in a lesser degree because of the availability of gadgets such as the electronic diary, calculators, and electronic spellers.

e. Leading you to fear technology. Fear of the technology can be explained by four factors: a person's cultural context, age, work habits, educational background, and the design of the computer system. Studies show that a worker who is old or had no computer education would not be as at ease with a computer compared with a younger person or someone who is computer literate. Fear is also encountered when an employee, who used to work in a traditional office setting, is suddenly placed in an electronic office without needed training. An overly complex and technically written operations manual alone could send jitters to anyone. Further, workers may view information technology as an obstacle to their job security. As software becomes more advanced and tasks traditionally done by humans become computerized, the notion that machines will eventually replace people in the workplace could become a reality.

Computers, moreover, by virtually eliminating the need for "traditional" manual tools eliminate who used these tools (McLeod, 58). The secretary who typed letters and memos on a typewriter, the artisans who paint movie ads on a sheet of plywood will be laid-off because all of these duties can now be crammed into one computer. But to date, jobs most at risk are those that use repetitive and predictable operations. Examples are jobs in the technical, managerial, manual, and clerical fields.

II. COMPUTER USE IN THE CONTEXT OF THE USER

Computer use can be classified into two categories: a.modes of computer use and b: types of end users (Danziger and Kramer, 61).

A. Modes of Computer Use

a. direct use - employees personally use a computer to get data from a computerized file
b. indirect use - employees request others to retrieve data from a computerized file
c. passive use - employees receive data that are based a computerized file from a third party

B. Types Of End Users

a. Total User – the total user is an employee who is engaged in direct, indirect, and passive use of computing. He makes direct use of computer terminal, requests others to provide information gathered from a computerized file, and receives computerized data furnished by others on an occasional basis.

b. Instrumental User – The instrumental user never makes direct use of a computer. He instructs others to provide computer-based data and receives IT generated data from fellow employees on an occasional basis.

c. Reactive User – This worker never makes use of a computer, seldom or do not request others to provide computer generated information, and seldom or occasionally receives data that has been spawned by others from a computerized file.

d. Non-user – The non-user has virtually no conscious involvement with computers or computer based data. He never makes direct, indirect, or passive use of a computer.

CHAPTER III

FRAMEWORKS OF THE STUDY

I. THEORETICAL FRAMEWORK

Several models and theories illustrate and explain how the applications of Information Technology in an office affect employees. One theory that is worth noting is the Deskilling Theory. This theory, first advanced in the 1950s, argued that advanced skills are required when a new technology is introduced, but that the skills necessary to operate it will fall as the technology matures. According to Richard S. Rosenberg," advanced technology deskills jobs, making them narrower, more repetitious and perfunctory, and leaving workers as nothing but machine tenders at relatively low pay." The essence of this theory is that the new work environment will naturally demand more from the skills of the workers but most of the staff will have reduced responsibilities. Their work will be constrained to data entry – that is, for example, sitting at a terminal all day, rapidly typing rows and columns of numbers.

James N. Danziger and Kenneth L. Kramer proposed the Contingency Theory as a possible means of explaining how computers affect individuals. This theory assumes that both environment and structure may influence organizational and employee performance. A central concern of the Contingency Theory has been "to specify the extent to which organizational structure is

contingent upon varied configurations of environmental factors that, in effect represent different environmental contexts."

Henry Lucas proposed a Conflict Model to explain what happens to an organization when it adopts an IT strategy. According to him, several factors initiate conflict within an organization. Among them are:

a. mutual dependence – it increases potential for conflict because the failure of one party to perform causes difficulty for other parties

b. uncertainty – employees who are uncertain of how to do work with computers have been known to experience frustration which then leads to conflict

c. dependence on common resources – employees sharing limited resources may lead to work dissatisfaction

d. communication – use of computer jargon may lead employees to think that the other employees are superior to them because they cannot master the use of technical words

e. computer professionals may not emphatize with workers who have average computer knowledge

According to Lucas, although certainly not all the conditions stated above might exist in one company, the relationship between the information services department and management with employees may lead to disruptive conflict. Because of this conflict, workers may be tempted to commit sabotage by withholding data or by providing incorrect input.

Henry Lucas conceptualized a Descriptive Model (Lucas, 74) that explains how information systems affect the organization. According to this model (see illustration) favorable user attitudes and perceptions of information systems and the information services staff lead to high levels of use of information systems (1). High levels of system use result from a system with high technical quality (2). Also, different personal and situational factors lead to differing levels of use of an information system and different actions (3).

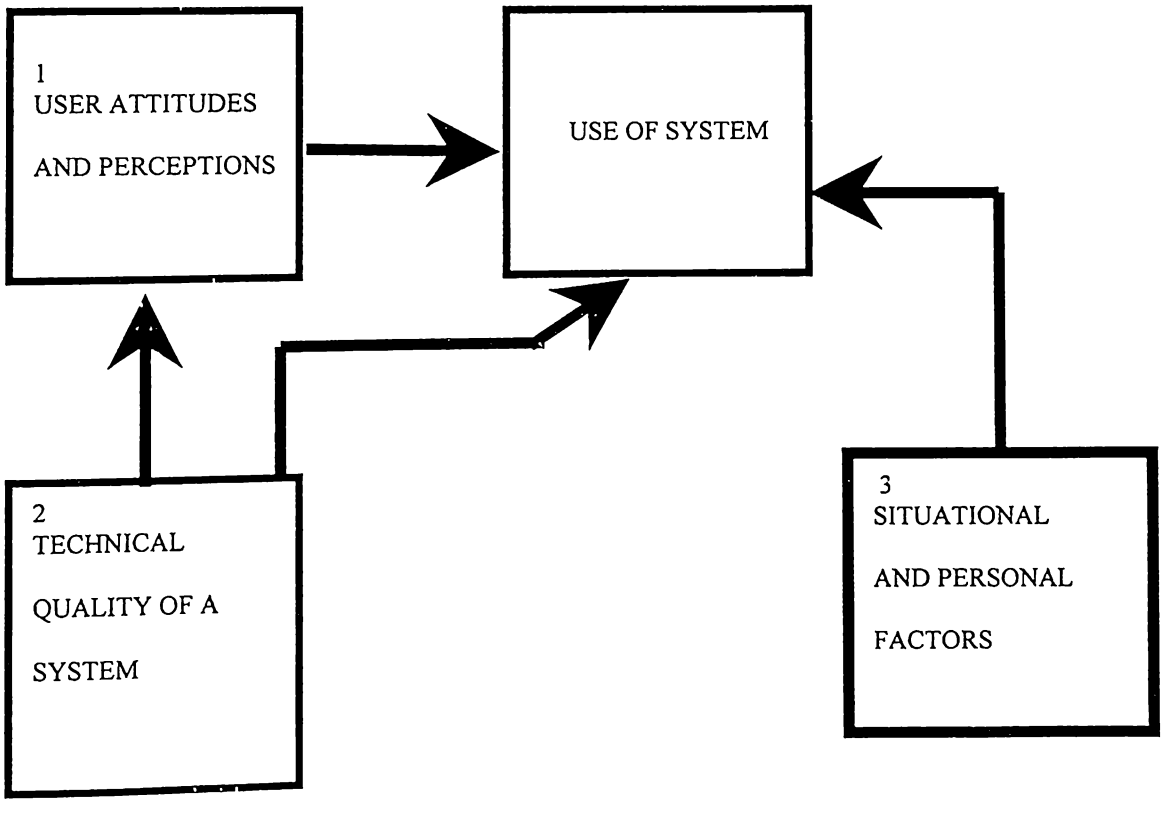


Figure 1: Descriptive Model by H.C. Lucas

III. CONCEPTUAL FRAMEWORK

The central issue of this study is to find out how computerization affects end-users and the operations of an organization. The researcher has conceptualized the context of computerization in terms of a) *the organizational environment* b) *the computer package* c) *the DBP employee's attitudes and perceptions towarsds computers.*

The *organizational environment* refers to the corporation, its practices, and its operations. It dictates what computer systems, software, and hardware the employees will use and the operations that will be done with it. According to different studies, corporations with extensive information environments experience higher levels of problems with computers and computer based systems (than personnel with less extensive information environments) because information-handling tasks have become too complex that problems occur more frequently (Danziger and Kraemer, 18).

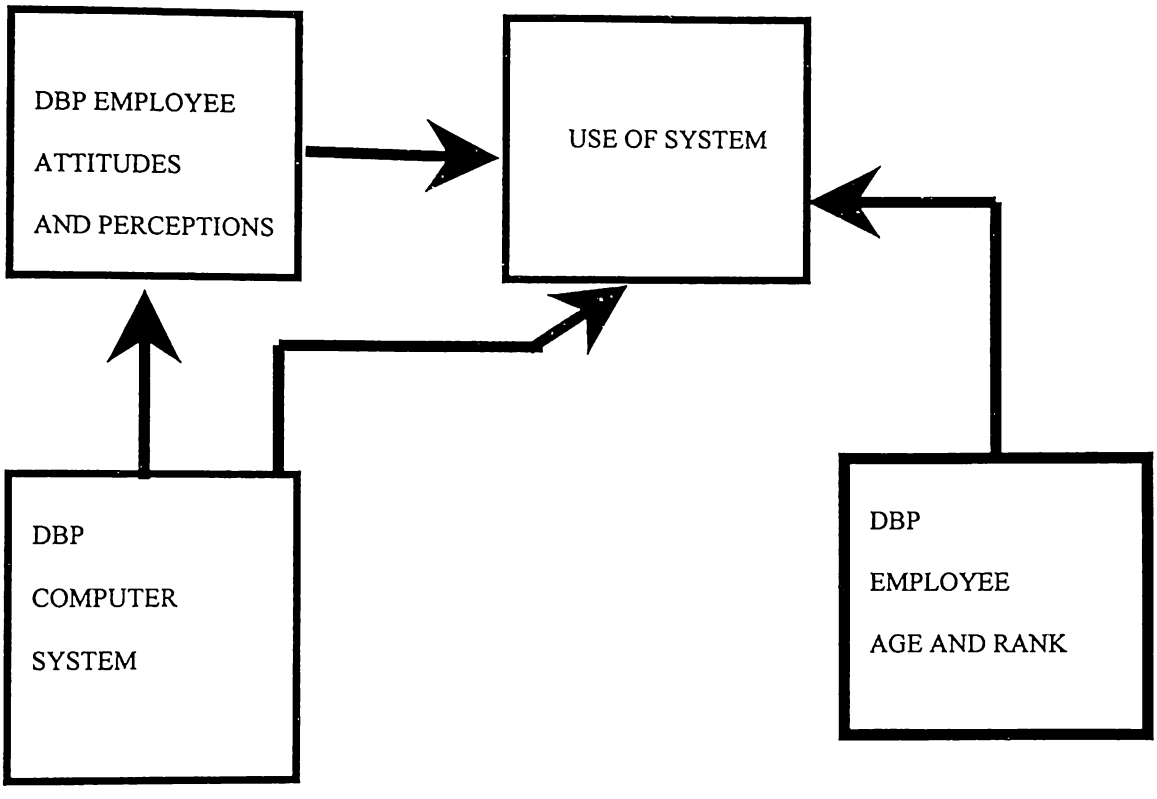
The second element of the research is the *DBP computer system* itself. The term computer package refers to the set of characteristics of the technology that includes the software, the hardware, and the computer programmers of the company. Some studies assume that more sophisticated computer packages will increase the chances of satisfactory job performance. Others suggest, however, that high technical sophistication might not be as valuable for other personnel when it comes to information processing. Henry Lucas observes that the

"complexity of the decision and the technology of the underlying computer systems might be inversely related" (Lucas, 10). One could also surmise that advanced technology will increase not only an information worker's performance benefits but also the problems and stress experienced in its used (Danziger and Kraemer, 19).

The most important element of our framework is the *DBP employee's attitudes and perceptions on computerization.* As sated in the Review of Related Literature an employee's attitude towards computers may be affected by his culture, habits, educational background, and his experiences with company software. Apart from these, a workers length of service in a particular position in the company, professional orientation, completion of courses in computers, past experience with the computer package, and his orientations toward the computer package may influence his outlook towards IT.

The conceptual framework will attempt to answer the research questions by assessing whether the sets of variables of the four elements of computer use combine to provide an explanation of how computerization affects end users and the quality of work in an organization.

Figure 2 illustrates the model that the study used.



IV. OPERATIONAL FRAMEWORK

In this study, the terms listed below will be defined as follows:

a. Automation - the implementation of processes by automatic means; the conversion of a procedure, a process, or equipment to automatic operation

b. Company - a group of people authorized to act as an individual, especially in business

c. Computer - a functional unit that can perform substantial computation, including numerous arithmetic operations, without intervention

d. Computerization – the presence of computers in an office

e. Computer package - the software, the hardware, as well as the programmers of the company being studied

f. Corporation - see company

g. Database - a comprehensive, integrated collection of data organized to avoid duplication of information and permit easy retrieval of data

h. DBP - the Development Bank of the Philippines

i. Effects – result or outcome of using or dealing with computers

j. End-user - the ultimate source or destination of information flowing through a system; employee using computers and computer software

k. Hardware - the physical components of a computer system

l. Information - the interpretation of data to provide meaning by an individual to a business

m. Information Technology (IT) - the acquisition, processing, storage, and dissemination of information via computers

n. Lower-level employees – staff professionals who do no managerial duties

o. Manager – one who supervises, directs, and controls operations at DBP

p. Office - where the business of a commercial or industrial organization is conducted

q. Perceptions – observation, discernment, mental images formed regarding what the computer can do

r. Program - a set of instructions that directs the computer to perform a series of operations

s. Software - instructions that control the physical hardware of the computer

CHAPTER 1V

METHODOLOGY

I. RESEARCH DESIGN

The study is quantitative-exploratory-descriptive. It collected, presented, and interpreted data on how computerization contributes to the perceived effects of computerization by employees to their overall performance and to the operations of their company. The focus is on collecting information about how Information Technology affects the work and work environment of end-users. Statistical analysis was also used to test the hypotheses of the study.

II. SAMPLING

The study was conducted at the head office of the Development Bank of the Philippines located at Gil Puyat corner Makati Avenue, Makati City. The researcher employed the purposive-random method of sampling.

The respondents of the study were taken from the Accounting Department and the Strategic Planning Center of the Development Bank of the Philippines. A total of 42 were given questionnaires. Eighteen of the respondents came from the former and twenty-four from the latter. The Accounting Department is one of the most computer-intensive branches of DBP, while the Strategic Planning Center is one of the departments with minimal computer duties.

III. DATA COLLECTION METHOD

The methods of research that will be used in the study are the following:

a. questionnaire – pieces of information were gathered through the use of a survey questionnaire which will be answered by the respondents. The questionnaire was pre-tested last December, 1999 on clerical employees at the Colegio San Agustin at Dasmarinas Village in Makati

b. interviews – interviews with key resource people were initiated in order to obtain data relevant to the study

IV. STATISTICAL TREATMENT

Information gathered from the survey questionnaire were be tallied and ranked according to frequency. The researcher then solved for the percentage of answers given for each question. These were then tabulated. Those with the highest scores were noted and used to record the findings of the study. Chi-square was used to test the hypotheses of the study.

The following formulae were used in the study:

$$\text{Mean} = \frac{a + b + c + d.....n}{N} \qquad \text{Percentage (Rate)} = \frac{P}{B}$$

$$\chi^2 = \Sigma \frac{(O-E)^2}{E}$$

CHAPTER V

DATA PRESENTATION AND ANALYSIS

I. PROFILE OF THE RESPONDENTS

Only 42 of the 50 questionnaires distributed at the Development Bank of the Philippines were accomplished and returned. The researcher concentrated on two departments: the Strategic Planning Center and the Accounting Department of DBP. Majority of the respondents were lower-level employees. Forty-three percent of the respondents belong to management; the highest ranking of which is a Vice-President from Accounting.

Thirty-one percent of the respondents (most of them belonging to management) were aged forty upwards. A similar percentage belongs to the twenty to twenty-nine age bracket. Thirty-eight percent were aged thirty to thirty-nine.

All of the respondents earned a college degree, with eight going on to graduate school. One of the respondents was able to earn a doctorate.

Information	Respondents
Job Description	Management - 18 (43%) Vice-president Asst. Vice president (4) Senior Manager (3) Exec. Manager Acct. Manager Manager (5) Exec. Accountant (2) Exec. Secretary
	Lower-level Employees - 24 (57%) Corporate Planner (3) Clerk (6) Accountant (2) Programmer (3) Auditor (3) Administrative Services Officer (3) Property Custodians Sales Consultant Messenger Trainee
Age	40 and above - 13 (31%)
	30 - 39 - 16 (38%)
	20 - 29 - 13 (31%)
Educational Attainment	Maters and/or Ph.D. - 8 (19%)
	College graduate - 34 (81%)

II. COMPUTER USE OF THE RESPONDENTS

Type of Computer Use	Never	At least once a year	Several times a year	A few times a week	Daily
Direct	1 (2%)	2 (5%)	15 (36%)	7 (17%)	17 (40%)
Indirect	2 (5%)	4 (10%)	12 (28%)	13 (31%)	11 (26%)
Passive	1 (2%)	3 (7%)	14 (33%)	9 (22%)	15 (36)

Forty percent of the employees that were given questionnaires indicated that they directly use computers daily, most of which are clerks and programmers. Thirty six percent (most of them belonging to management) use IT applications several times a year. Seventeen percent use computerized workstations occasionally in a given year. Five percent are involved with direct use of computers only once a year, while only one (2%) of the respondents indicated that they never use a computer.

III. INTERPRETATION OF DATA

1. Direction of Computer Based Data

	No. of Employees	Percentage
Superiors	18	43%
Subordinates	14	33
Employees of the same rank	10	24
Total	42	100%

This question seeked to investigate the direction or flow of computerized data. The respondents were asked from whom did they receive computer-

generated data. They were asked to select from three choices (subordinates, superiors, and employees of the same rank). According to the responses received, most of IT generated info flow downward (43%). Thirty-three percent indicated that they received data from the superiors. Twenty-four percent said that computer generated data flows horizontally.

2. Computer Efficiency

Question	Responses				
	SD	D	N	A	SA
- Computers have reduced the number of people necessary to perform tasks in your department	1 2%	6 14%	11 26%	22 53%	2 5%
- Computers allow departments to handle a greater volume of service without corresponding increases in cost	1 2.48 %	6 14.38 %	20 47.62 %	14 33.33 %	1 2.48 %
- Computers have reduced the cost of your departments operations	3 7%	5 12%	14 33%	18 43%	2 5%
Average	1.67	5.66	15	18	1.67

More than half of the respondents (fifty-three percent) believed that computers lessen the number of employees required to optimally run their respective departments. Twenty-six percent neither agreed nor disagreed with the assertion that information technology will decrease worker population. Six employees disagreed with the question posed and perceived that computerization will not mean that their department will need a fewer amount of people to continue operations. Two (five percent) of those queried strongly agreed with the assumption that computerization will takeover tasks formerly done by people, while only one strongly disagreed.

Thirty-three percent of the respondents agree with the notion that computers allow departments to handle larger volumes of work without parallel increases in costs. Fourteen percent of the employees questioned do not believe that applications of IT make the use of resources more efficient. Two percent strongly disagreed. Two percent of those asked strongly agreed with the idea. Forty-eight percent of the respondents are undecided on the supposition.

Forty-three percent of the respondents believed that due to computerization, the expenses of their respective spheres of duty were lessened. Five of those questioned strongly agreed with the concept. Twelve percent of the personnel queried, however, do not believe so. Seven strongly disagreed with the view that IT helps cut department expenditure. Thirty three percent or fourteen workers had indifferent perceptions of the impacts of computing with regards to the operating costs of their departments.

3. Service Effectiveness

	No. of Employees	Percentage
Strongly Disagree	5	11.9%
Disagree	22	52.4
Neutral	11	26.2
Agree	3	7.1
Strongly Agree	1	2.4
Total	42	100%

The direction of meaning for this question was reversed to reflect a favorable assessment. Fifty two percent agreed and perceived that computers have managed to increase the effectiveness of their respective departments, while nearly twelve percent strongly agreed. Three percent did not discern that IT cannot help departments with their operations, two percent strongly disagreed. Twenty-six percent have neutral opinions on the matter.

4. Computers and Creativity

	No. of Employees	Percentage
Strongly Disagree	6	14%
Disagree	10	24
Neutral	15	36
Agree	10	24
Strongly Agree	1	2
Total	42	100%

Fourteen percent of the workers given questionnaires strongly disagreed and do not believe that computers will diminish a person's inventiveness. Twenty-four percent also disagreed with the concept. Two percent strongly believed that IT would inhibit a person's creative skills. Twenty four percent agreed with the concept proposed. Fifteen of the respondents, or thirty-six percent, had neutral opinions.

5. Impersonality of work

	No. of Employees	Percentage
Strongly Disagree	6	14%
Disagree	10	24
Neutral	15	36
Agree	10	24
Strongly Agree	1	2
Total	42	100%

A high forty-three percent of the respondents perceived that computers tend to make work impersonal, 10% also strongly agreed with this view. Seven percent strongly disagreed with this notion. Three percent also disagreed with this view. Fourteen of the respondents (33%) were undecided.

6. Redundancy of Work

	No. of Employees	Percentage
Strongly Disagree	2	5
Disagree	13	32
Neutral	11	26.5
Agree	11	26.5
Strongly Agree	4	10
Total	41	100%

Twenty-six percent of the respondents believes that computers will make them do repetitive operations. Thirty-two percent disagreed and believed that applications of IT will not subject them to redundant tasks. Ten percent strongly agree with the concept proposed, while five percents strongly disagree. Another twenty-six percent had neutral opinions on the matter.

7. Perceptions of Respondents Regarding Computer Benefits

	No. of Employees	Percentage
Reduce time spent Processing papers	14	33%
Reduce errors	6	14
Makes job more interesting	2	5
Makes it easier to find info.	10	24
Makes it easier to use info.	4	9.5
Makes comm. W/ other Depts. easier	4	9.5
Do not know specifically	2	5
Total	42	100%

In this question, the employees were given a set of seven responses from which they were asked to choose what they perceive to be the most beneficial aspect of computing. Ranked according to frequency, the response with the most number of employees that chose it was "reduce time spent processing papers" followed by "make it easier to find information." The answer with the third highest score was "reduce errors."

8. Information Benefits of Computing

Question	Response			
	Almost Never True	Sometimes True	Frequently True	Nearly Always True
- The computer makes new information available to me which was not previously available	0 0%	20 48%	19 45%	3 7%
- The computer provides me with more up-to-date information than available in manual files	0 0%	12 29%	24 57%	6 14%
- Computers have made it easier for me to get the information I need	0 0%	10 24%	27 64%	5 12%
- Computer save me time in looking for information	0 0%	9 21%	28 67%	5 12%
Average	0	12.75	24.5	4.75

In terms of information retrieval, forty-eight percent of the employees indicated that ease of getting data using computers is sometimes true. Forty-five percent replied that this is frequently correct. Three respondents perceived that computers have sometimes helped them obtain previously unavailable data.

Twenty-four respondents or fifty-seven percent perceive computerized files are frequently more up to date compared to manual files. Twenty-nine percent indicated that computer-generated information frequently provides more up to date information. While fourteen percent believed that this occurrence is nearly always true.

Sixty-four percent of the respondents indicated that, through computers, ease in accessing information is frequently realized. Twenty-four percent of the workers replied that this was sometimes true, while twelve percent answered that it was almost always easy getting data if they utilize computer technology.

In terms of time savings brought about by the use of computers, sixty-seven percent indicated that they frequently experienced this. Twenty-one percent answered that this sometimes happens to them. Twelve percent perceived that this occurrence was nearly always true.

9. Computers and Information Anxiety

	No. of Employees	Percentage
Almost never true	6	14%
Sometimes true	20	48
Frequently true	14	33
Nearly always true	2	5
Total	42	100%

Anxiety caused by too much computer generated information was experienced and was deemed to be sometimes true by twenty (48%) of the respondents. Thirty-three percent felt that this frequently happened to them. Five percent indicated that this occurred to them almost always. Fourteen percent perceived that they have never experienced this.

10. Information Problems with Computing

Question	Responses			
	Almost Never True	Sometimes true	Frequently true	Nearly always true
- Information is difficult to change or correct once it has bee put on a computerized file	10 24%	24 57%	4 9.5%	4 9.5%
- Computerized data are less accurate than data in manual records and files	8 19%	23 55%	9 21%	2 5%
Average	9	23.5	6.5	3

According to fifty-seven percent of the responses gathered, the experience of having difficulty in changing or correcting data once it has been inputted on a computer is sometimes true. Twenty-four percent signified that this phenomenon was almost never true. Four of the respondents (9.5%) answered that this frequently happened to them. Another four of the employees indicated that this was nearly always true.

Fifty-five percent of the respondents believe that computerized data are sometimes less accurate than information from manual files. Twenty-one percent believe that this is frequently true. Nineteen percent believed that this was almost never true, while two of the respondents perceive this to be nearly always true.

11. Operational Problems with Computing

Question	Responses			
	Not a Problem	At times A problem	Often a problem	Very often a Problem
- For me, foul-ups in day-to-day computer operations are	3 7%	28 67%	10 24%	1 2%
- For me, slow response of data processing to request for information is	1 2%	24 57%	12 29%	5 12%
- For me difficulty in getting priority in using a computer in my department is	8 19%	17 40%	14 29%	3 7%
Average	4	23	12	3

Sixty-seven percent of the respondents indicated that mismanagement of computers was sometimes a problem for them. Twenty-four percent indicated that they often have problems with the technology. Three respondents said that this was not a problem for them. Only one of the workers answered that this was very often a problem for him.

The amount of time between data processing and the granting of requests for information was investigated in this question. Fifty-seven perceived this to be sometimes a problem. Twelve percent answered that this is often a problem in their respective departments. One employee signified that this was not a problem. Five percent responded that for them this was very often a problem.

Forty percent of the respondents indicated that priority of computer use in their departments was at time a problem for them. Thirty percent were often beset with the said problem. Twenty percent said that primacy in computer use in

their department, as much as they were concerned, was not a problem. Only three of the employees questioned indicated that priority in computer was often a dilemma in their respective offices.

12. Dependence of Work to Computers

	No. of Employees	Percentage
Strongly Disagree	3	7%
Disagree	17	41
Neutral	14	33
Agree	6	14
Strongly Agree	2	5
Total	42	100%

Forty-one percent of the respondents believe that they can still do their work even if their computer use was discontinued. Fourteen percent agreed, while two of the respondents strongly agreed and believed that their work is very much dependent on IT applications. Three respondents (7%) vehemently disagreed that they could not do their jobs without computers. Thirty-three percent had neutral opinions regarding the matter.

13.Emotional Attachment of Employees to Computers

	No. of Employees	Percentage
Strongly Disagree	4	10%
Disagree	10	24
Neutral	18	44
Agree	5	12
Strongly Agree	4	10
Total	41	100%

Twenty- four percent of the respondents disagreed and indicated that they would not be angry if their computer use was terminated, four percent strongly disagreed. Twelve percent agreed and signified that they would be upset if their use of IT applications was discontinued. Four of the respondents strongly agreed. Forty-four percent of the respondents had neutral opinions on the matter.

14.Perceptions of Employees regarding Computer Problems

	No. of Employees	Percentage
Make things more complicated	2	5%
Harder to use	6	14
Make more mistakes	3	7
Take more of my time	7	17
Lose information	13	31
Make work boring	1	2
Do not know specifically	10	24%
Total	42	100%

For this question, the respondents were given seven choices and were asked what they perceived to be the most major problem in handling computers. According to the respondents their most common concern with regards to problems with computersis that computers would "lose information." The answer with the second highest score was "they did not know specifically but felt there would be problems." The response with the third highest total was it would "take more of my time."

15. Time Pressures at Work

	No. of Employees	Percentage
Decreased	18	44%
Not affected	16	39
Increased	7	17
Don't know	0	0
Total	41	100%

Thirty-eight percent of the respondents indicated that computerization had no effect on time pressures experienced in their respective jobs. Eighteen percent replied that computers have help diminish time constraints in their work. Seven percent of the respondents perceived IT as responsible for increasing the time pressures of their work.

16.Sense of Accomplishment at Work

Lowered	1	2%
Not affected	14	33
Raised	26	63
Don't know	1	2
Total	42	100%

The prevailing perception of the workers queried is that computers have helped raise their sense of accomplishment (63%). Thirty-three percent indicated that IT had no effect on them with regards to fulfillment they experience during work. Two percent answered that computers have lowered their sense of accomplishment. A similar percentage indicated that they do not know whether computers have affected their work fulfillment or not.

17. Supervision at Work

	No. of Employees	Percentage
Less supervised	14	33%
No difference	24	57
More supervised	4	10
Don't know	0	0
Total	42	100%

Fifty-seven percent of the respondents felt that computers did not affect how closely they were supervised at work. Thirty-three percent perceived that IT made their work less supervised. Only four of the respondents (10%) believed that the machine caused their jobs to become more closely supervised.

18. Influence Over Others at Work

	No. of Employees	Percentage
Less influence	6	14%
No change	20	48
More influence	11	26
Don't know	3	7
Total	40	100%

This question asks whether computerization gave employees more or less power over others. Forty-eight percent perceived that there was no change. Twenty-six percent felt that they have more control over other employees as a result of computing. Six of the respondents signified that applications of IT gave them less influence over the actions of other workers. Seven percent did not know whether computers have given them more or less power.

19. Preference of Employees

a. Reading from Paper vs. Reading from a terminal

Choices	No. of Employees	Percentage
Reading from paper	34	83%
Reading from a terminal	7	17
Total	41	100%

Eighty-three percent prefer reading from paper while only seventeen percent indicated that they are more at ease examining data on a computer monitor. A probable reason for this is because, unlike computer monitors, paper is portable and does not cause inconvenience to the eyes.

b. Writing on paper vs. Encoding on a terminal

	No. of Employees	Percentage
Writing on paper	9	23%
Encoding on a computer	30	77
Total	39	100%

Seventy-seven percent of the respondents indicated that they prefer encoding on a computer than writing on paper (23%). A likely explanation for this is because it is much easier to correct mistakes on a word processor than on paper. Moreover, information tools like a thesaurus is readily available on a computer. Appearance and presentation of data is also improved.

20. Computers and Level of Stress

	No. of Employees	Percentage
Lowered	12	29%
Not affected	16	38
Raised	13	31
Don't know	1	7
Total	42	100%

An employee's level of stress can also be affected by computers. According to the data gathered, sixteen of the respondents or approximately thirty-eight percent perceived that computers had no effect on stress. Thirty one percent indicated that they felt that IT applications raised their level of stress. Twenty-nine percent said that their level of stress was lowered as result of computerization. Only one of the respondents had no opinion regarding the matter.

IV. Statistical Analysis on the Direct Use of Computers with Regards to Type of Job

Table A.1 Observed Frequency

	Never	At least once a year	Several times a year	A few times a week	Daily	TOTAL
Managers	0	2	10	3	3	18
Lower level employees	1	0	5	4	14	24
TOTAL	1	2	15	7	17	42

Table A.2 Expected Frequency

	Never	At least once a year	Several times a year	A few times a week	Daily
Managers	.21	.43	3.21	1.5	3.6
Lower level employees	.28	.54	4.28	2	4.8

The following hypotheses were formulated for the computation of the chi-square value:

Ho: There is NO significant difference in the direct use of computers between managers and lower level employees.

H1: Managers directly use computers much less compared to lower-level employees.

The degree of freedom (df) was computed to be 4, and an alpha value of 0.05 was set, with a corresponding critical value of 9.488.

The degrees of freedom was computed using the following formula:

df = (number of rows – 1)x(number of columns – 1)

df = (2 – 1)x(5 –1)

df = 1 x 4

df = 4

The chi-square value formula is as follows:

$$\chi^2 = \Sigma \frac{(O - E)^2}{E}$$

$$= \frac{(0 - .21)^2}{.21} + \frac{(2 - .43)^2}{.43} + \frac{(10 - 3.21)^2}{3.21} + \frac{(3 - 1.5)^2}{1.5} + \frac{(3 - 3.6)^2}{3.6} +$$

$$\frac{(1 - .28)^2}{.28} + \frac{(0 - .54)^2}{.54} + \frac{(5 - 4.28)^2}{4.28} + \frac{(4 - 2)^2}{2} + \frac{(14 - 4.8)^2}{4.8}$$

$$= .21 + 5.73 + 14.36 + 1.5 + .1 + 1.85 + .54 + .12 + 2 + 17.63$$

$$\chi^2 = 44.04$$

with O as the observed frequency and E the corresponding expected frequency. The expected frequency, in turn was computed using the following formula:

$$E = \frac{\text{row total x column total}}{\text{Grand Total}}$$

The computed chi-square value was 44.04, which is markedly higher than the pre-determined critical value of 9.488. Therefore, the null hypothesis is rejected, giving us the conclusion that direct computer use will tend to be much less as an employee rises up the corporate ladder.

Observed Frequency

Answers to questions 24 - 26	Almost never true	Sometimes true	Frequently true	Nearly always true	Total
40 and above	1	17	18	3	39
30 - 39	6	30	7	5	48
20 - 29	5	24	9	1	39
Total	12	71	34	9	126

Expected frequency

	Almost never true	Sometimes true	Frequently true	Nearly always true
40 and above	3.71	21.98	10.52	2.78
30 - 39	4.57	27.05	12.95	3.43
20 - 29	3.71	21.98	10.52	2.78

The following hypotheses were formulated for the computation of the chi-square value:

Ho: There is NO significant difference in the level of operational problems encountered by employees belonging to different age brackets

H1. There is a significant difference in the level of operational problems encountered by employees belonging to different age brackets

The degree of freedom (df) was computed to be 6, and an alpha value of 0.05 was set, with a corresponding critical value of 12.592. The degree of freedom was computed using the same formula given above. The same formulas for the expected frequency and chi-square were also used.

df = (number of rows – 1)x(number of columns – 1)

= (3 – 1) X (4 – 1)

= 6

The computation for the chi-square value is as follows:

$$\chi^2 = \Sigma \frac{(O - E)^2}{E}$$

$$= \frac{(1 - 3.71)}{3.71} + \frac{(17 - 21.98)^2}{21.98} + \frac{(18 - 10.52)^2}{10.52} + \frac{(3 - 2.78)^2}{2.78} +$$

$$\frac{(6 - 4.57)^2}{4.57} + \frac{(30 - 27.05)^2}{27.05} + \frac{(7 - 12.95)^2}{12.95} + \frac{(5 - 3.43)^2}{3.43} +$$

$$\frac{(5 - 3.71)^2}{3.71} + \frac{(24 - 21.98)^2}{21.98} + \frac{(9 - 10.52)^2}{10.52} + \frac{(1 - 2.78)^2}{2.78}$$

$$= 1.98 + 1.13 + 5.32 + .02 + .45 + .32 + 2.73 + .72 + .45 + .19 + .22 + 1.14$$

$$\chi^2 = 14.67$$

Chi-square was computed to have a value of 14.71. We reject the null hypothesis because χ^2>critical value (14.67>12.592) and the alternative hypothesis is put into consideration. Therefore, there is a significant difference in the level of difficulty in dealing with computer operational problems by employees belonging to different age brackets.

CHAPTER VI

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

I. SUMMARY

The study was conducted at the head office of the Development Bank of the Philippines located at Sen. Gil Puyat corner Makati Ave., Makati City. Of the fifty questionnaires distributed, only 42 were returned. Eighteen of the respondents came from the Accounting Department, while the remainder were employees working at the Strategic Planning Center of the said bank. Forty-three percent of the respondents came from management, while Fifty-seven percent were lower-level employees. Thirty-one percent were aged forty and above, thirty-eight percent were between thirty to thirty-nine years old, while thirty-one percent were between the twenty to twenty-nine age bracket.

Majority of the employees that were given questionnaires are total users of computers. Only one of the respondents, a messenger, was a non-user. Most of the data generated by computers come from those occupying high positions in the company. Computerized data flow downward.

The respondents believe that computers have managed to increase the effectiveness of their departments in serving clients. Easier access to information has also been realized because of information technology. Computers have also given workers considerable savings in time when searching for data.

Most of the respondents experience information anxiety. They sometimes cannot cope with the amount of data generated by computers. They also occasionally encountered informational problems with computers. The employees find it difficult to correct or change data once it has been put into a computerized file. They also perceive computerized information as less accurate than data available in manual files.

The respondents occasionally experience foul-ups or operational glitches while using the machine. Slow response of data processing to requests for information is another problem. Priority in using computers is also a dilemma. The computer, moreover, was perceived by the workers as responsible for increasing time pressures in their work.

The DBP employees experienced a raised sense of accomplishment due to computerization. They also encountered no differences in supervision as well as in their influence over other employees.

Further, computers have not affected the workers' level of stress. Employees also prefer reading from paper instead of reading from a computer terminal. They also favor encoding on a computer than writing on paper.

Through chi-square analysis, the study also found out that there is a significant difference in the level of computer use between managers and lower-level employees. It was also observed that older workers tend to experience operational problems more frequently than younger employees.

II. CONCLUSIONS

Computers affect the operations and the employees of an organization in distinct and definite ways. Employees perceive working with computers as having both advantages and disadvantages.

Information Technology allows organization to work and handle resources efficiently. The number of employees needed to perform certain tasks has been reduced, a greater volume of work can be accomplished, and reduction of operational costs has been realized due to computerization.

The handling of information has also been made easier due to applications of IT. Up to date information and previously unavailable data can now be accessed. Increased accessibility to info has been achieved. Length of time spent searching for this data has been shortened.

There are, however, several disadvantages that should be noted. Too much information does not equate to quality or crucial information. There is a

danger that with too much unnecessary information, the employee will have difficulty handling them.

Operational problems with computers can also be expected. Data could sometimes be lost or be hard to correct once inputted. Also, pieces of information can sometimes be less accurate than those available in manual files.

Due to the ease of work and the increase in the quality of output computer raise the sense of accomplishment of employees when it comes to their job.

Through statistical analysis, we can also conclude that direct use of computer is affected by an employees rank in the organization. Managers will tend to use computers much less than lower-level employees. Those in the positions higher in the organizational hierarchy will have more discretion about utilization and thus have lower proportions of direct users.

Finally, older employees will have higher proportions of those encountering operational problems compared to younger workers. Older workers have a tendency not to embrace new technologies as enthusiastically as younger employees.

III. RECOMMENDATIONS

A continuous evaluation of the DBP's computer program is suggested. The DBP management should make sure that computers in the organization meet the demands of the users. A series of seminars and conferences dealing with computers that is designed for the benefit of all employees should be sponsored by the organization. Continuous computer training should also be undertaken.

If future researchers wish to further study the topic of this research, it is suggested that a larger number of respondents must be considered. Other computer "issues" such as invasion of privacy, effects of computers to the body, e-mail, as well as the Internet should also be studied. The effects of computerization to interpersonal communication must also be scrutinized.

A comparative study between private and public organizations vis-à-vis perceptions of employees about computerization should also be researched.

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Appendix

Shalom! My name is Lester John M. Policarpio and I am currently doing my undergraduate thesis to fulfill my requirements in the BA Organizational Communications program of UP Manila. I would really appreciate it if you can answer this questionnaire truthfully. Be assured that your answers will be treated as confidential. Thank you.

Name (Optional): _____ Sex: _____
Position: _____ Age: _____
Highest Educational Attainment: _____ Department: _____

I. USER CHARACTERISTICS

1. For how many years/months have you been working in your current position? _____
2. Have you participated in any courses, conferences, or seminars providing a general background on what computers can do and how they do it? ___ Yes ___ No
3. How interested are you with computers?
   1 Not interested 2 Somewhat interested 3 Interested 4 Very Interested
4. For how many years have you been directly involved in using computers and computer generated information? Please indicate the number of years. _____
5. How often do you use a computer terminal to get information from a computerized file?
   1 Never 2 At least once a year 3 Several times a year 4 A few times a week 5 Daily
6. How often do you request others (by phone, pager, or in person) to get information from a computerized file?
   1 Never 2 At least once a year 3 Several times a year 4 A few times a week 5 Daily
7. How often do you receive reports that are based on computer data?
   1 Never 2 At least once a year 3 Several times a year 4 A few times a week 5 Daily
8. Do you receive this reports from your ___ subordinates ___ superiors ___ employees of the same rank
   (please rank in terms of frequency; 1 – 3, 1 is the most frequent)

II. COMPUTER EFFICIENCY

9. Computers have reduced the number of people necessary to perform tasks in your department. Do you:
   1 Strongly Disagree 2 Disagree 3 Neutral 4 Agree 5 Strongly Agree
10. Computers allow departments to handle a greater volume of service without corresponding increases in cost. Do you:
   1 Strongly Disagree 2 Disagree 3 Neutral 4 Agree 5 Strongly Agree
11. Computers have reduced the cost of your departments operations. Do you:
   1 Strongly Disagree 2 Disagree 3 Neutral 4 Agree 5 Strongly Agree
12. Computers have failed to increase the effectiveness of your department in serving your clients.
   1 Strongly Disagree 2 Disagree 3 Neutral 4 Agree 5 Strongly Agree
13. Computers have hindered creativity. Do you:
   1 Strongly Disagree 2 Disagree 3 Neutral 4 Agree 5 Strongly Agree
14. Computers make work less personal. Do you:
   1 Strongly Disagree 2 Disagree 3 Neutral 4 Agree 5 Strongly Agree
15. Using computers would make employees do the same operations again and again. Do you:
   1 Strongly Disagree 2 Disagree 3 Neutral 4 Agree 5 Strongly Agree
16. How do you think can a computer benefit you?(Please encircle one.)
   1 Reduce time spent processing papers
   2 Reduce errors
   3 Makes my job more interesting
   4 Makes it easier to find information
   5 Makes it easier to use information
   6 Makes communication with other departments easier
   7 I do not know specifically but feel it would help

III. INFORMATION RETRIEVAL

17. The computer makes new information available to me which was not previously available
    1 Almost never true 2 Sometimes true 3 Frequently true 4 Nearly always true
18. The computer provides me with more up to date information than that available in manual files
    1 Almost never true 2 Sometimes true 3 Frequently true 4 Nearly always true
19. Computers have made it easier for me to get the information I need
    1 Almost never true 2 Sometimes true 3 Frequently true 4 Nearly always true
20. Computers save me time in looking for information
    1 Almost never true 2 Sometimes true 3 Frequently true 4 Nearly always true
21. Computers have given me access to too much information and I have difficulty handling them
    1 Almost never true 2 Sometimes true 3 Frequently true 4 Nearly always true

IV. PROBLEMS WITH COMPUTING

22. Information is difficult to change or correct once it has been put on a computerized file
    1 Almost never true 2 Sometimes true 3 Frequently true 4 Nearly always true
23. Computerized data are less accurate than data in manual records and files
    1 Almost never true 2 Sometimes true 3 Frequently true 4 Nearly always true
24. For me, foul-ups in day to day computer operations are
    1 Not a problem 2 At times a problem 3 Often a problem 4 Very often a problem
25. For me, slow response of data processing to requests for information is
    1 Not a problem 2 At times a problem 3 Often a problem 4 Very often a problem
26. For me difficulty in getting priority in using a computer in my department is
    1 Not a problem 2 At times a problem 3 Often a problem 4 Very often a problem
27. Without the computer I will not be able to do my work.
    1 Strongly Disagree 2 Disagree 3 Neutral 4 Agree 5 Strongly Agree
28. If my computer use in the office is discontinued I'd be angry
    1 Strongly Disagree 2 Disagree 3 Neutral 4 Agree 5 Strongly Agree
29. What do you think would be the major problems with a computer? (Please encircle one)
    1 It would make things more complicated
    2 It would be harder to use
    3 It would make more mistakes
    4 It would take more of my time
    5 It would lose information
    6 It would make my work boring
    7 I don't know specifically what, but feel there would be problems

V. EFFECTS OF COMPUTING TO WORK

30. Has computing increased or decreased time pressures in your job?
    1 Decreased 2 Not affected 3 Increased 4 Don't know
31. Has computing raised or lowered your sense of accomplishment in your work?
    1 Lowered 2 Not affected 3 Raised 4 Don't know
32. As a result of your computing, is your work more or less closely supervised?
    1 Less supervised 2 No difference 3 More supervised 4 Don't know
34. Has computing given you more or less influence over the actions of others?
    1 Less influence 2 No change 3 More influence 4 Don't know
35. Which do you prefer? a. ___ Reading from paper ___ Reading from a terminal
    b. ___ Writing on paper ___ Encoding on a computer
36. Has computing raised or lowered your level of stress?
    1 Lowered 2 Not affected 3 Raised 4 Don't know

THANK YOU !