

" For those who pursue it , excellence is a paradox in the mirage of eternal truth. The deepest they dive in its fulgency , the more ignorant they become ."

**EFFECT OF COMPUTER KNOWLEDGE  
ON TEACHING METHODS  
AT A UNIVERSITY LEVEL**

**BY  
HASSAN ALI "NASSER HATOUM"**

**BEIRUT , LEBANON**

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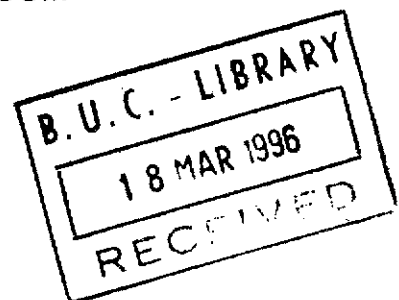
**A Research Topic  
Presented to the Business Division  
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**In Partial Fulfillment  
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Master of Science in Business  
Management**

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**BY  
HASSAN ALI "NASSER HATOUM"  
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LEBANESE AMERICAN UNIVERSITY

P.O.BOX 13-5053(281)

BEIRUT , LEBANON

APPROVAL OF RESEARCH TOPIC

CANDIDATE **HASSAN ALI "NASSER HATOUM"** DATE **JUNE, 1995**

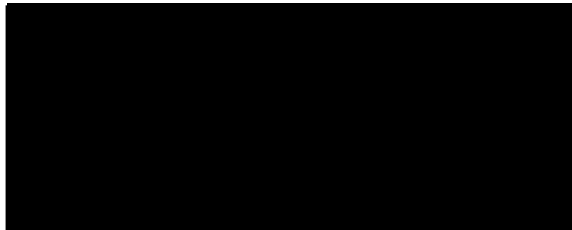
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ADVISOR **ABDUL RAZZAK CHARBAGI**

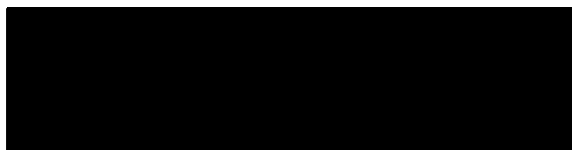
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TEACHING METHODS AT A UNIVERSITY LEVEL**

The following professors nominated to serve as the advisors of the above candidate have approved his work.

ADVISORS **DR. ABDUL RAZZAK CHARBAGI**  
NAME



**DR. TAREK MIKDASHI**  
NAME



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## **CHAPTER I**

### **INTRODUCTION**

#### **General Background**

In our times of rapid technology and competitive edges, computers were introduced in the universities before teachers were ready to use them. This speed in the introduction was necessary to catch the time that lapsed during the war, but teachers were not ready because none of them had proper training at a professional level. Logically speaking, it became imperative to train teachers; However, previous researches showed that adults prefer to be trained in a safe situation. This seems to be specially true for university teachers who do not like to make mistakes in front of their peers let alone in front of their students; therefore, most teachers in Lebanon have had little computer training or no training at all. To bridge the gap (Lack of computer training) few teachers tried to have access to computers in many different ways. Some, for example, bought computers while others had access to them at work, but many were unable to do it because of one reason or another.

## **Need for the Study**

Based on the review of literature ,the experts opinions in the academic field , in addition to the researcher experience in this field as a computer programmer ,a computer user , and a computer trainer, it stands to reason the conclusion that most teachers in Lebanon have had little training or no training at all; Due to what was mentionned in the general background for the importance of computers in the educational institutions , the need for the study rose and was enhanced .

## **Purpose of the study**

Actually the purpose of the study is to throw light on the effect of microcomputers on the teaching methods at the university level in Lebanon. Logically speaking , if the university teacher was able to bridge the gap of lacking computer skills by having access to a computer then this teacher is expected to be more concerned about using computer in his/her class because he/she has become aware or more aware of its effectiveness.

## **Statement of the Problem**

The problem was stated in the general background concerning the teachers who are not getting enough computer training before teaching computers or on computers. This same problem has specially been felt when some students turn to be more experienced or knowledgeable about computers than their instructors.

In an era where education is turning to be computerized, what possible things can be done to improve the skills of the instructor to regain his/her seat as the most knowledgeable in the classroom? . Does computer knowledge for instructors affect teaching methods at a university level? And does it affect their willingness and concern ? This statement will be tested given the following conditions:

- a- The instructor holds a Ph.D degree.
- b- The instructor teaches in a private university.
- c- The instructor is below thirty nine years (young).
- d- The instructor has more than ten years experience.
- e- The instructor owns a computer at work.
- f- The instructor has a high salary.
- g- The instructor works in an institute beside his/her work at the university.

## **Research Questions and Hypothesis**

### ***Research questions :***

- What are the major characteristics of the selected sample for the study ?
  
- What are the reliability and validity of the instruments ?
  
- What are the variables that are most likely to be associated with the effect on teaching methods?
  
- Is there a relationship between the different variables;and if a relation exists;then what is exactly that relationship?

***Research and Statistical Hypothesis :***

The research hypothesis formulated along with the alternatives and statistical hypothesis are stated hereunder:

***R<sub>1</sub>*** : Doctors with Ph.d degree hold a more positive attitude towards using computers in education at a university level.

***Alternative:*** Doctors with Ph.d degree do not hold a more positive attitude towards using computers in education at a university level.

$$S_1: \begin{array}{l} H_0 : P_1 \geq P_2 \\ H_1 : P_1 < P_2 \end{array}$$

---

***R<sub>2</sub>***: Doctors teaching in private universities hold a more positive attitude towards using computers in education at a university level.

***Alternative:*** Doctors teaching in private universities do not hold a more positive attitude towards using computers in education at a university level.

$$S_2: \begin{array}{l} H_0 : P_1 \geq P_2 \\ H_1 : P_1 < P_2 \end{array}$$

---

***R<sub>3</sub>*** : The younger the instructor is the more positive his/her attitude will be towards the computer as a medium of change of his/her professional status.

***Alternative:*** The younger the instructor is does not mean the more positive his/her attitude will be towards the computer as a medium of change of his/her professional status.

$$S_3: H_0 : P_1 \geq P_2$$

$$H_1 : P_1 < P_2$$

---

***R<sub>4</sub>***: Doctors with Ph.d degree hold a more positive attitude towards the willingness to introduce computers in education at a university level.

***Alternative:*** Doctors with Ph.d degree do not hold a more positive attitude towards the willingness to introduce computers in education at a university level.

$$S_4: H_0 : P_1 \geq P_2$$

$$H_1 : P_1 < P_2$$

---

**R<sub>5</sub>**: Doctors with less experience than others hold a more positive attitude towards the willingness to introduce computers in education at a university level.

**Alternative:** Doctors with less experience than others do not hold a more positive attitude towards the willingness to introduce computers in education at a university level.

$$S_5: H_0: P_1 \geq P_2$$

$$H_1: P_1 < P_2$$

---

**R<sub>6</sub>**: Doctors who own a computer at work are more willing to introduce computers in education at a university level.

**Alternative:** Doctors who own a computer at work are not more willing to introduce computers in education at a university level.

$$S_6: H_0: P_1 \geq P_2$$

$$H_1: P_1 < P_2$$

---



***R7*** : Doctors teaching in private universities are more willing to introduce computers at universities.

***Alternative:*** Doctors teaching in private universities are not more willing to introduce computers at universities.

$$S7: H_0 : P_1 \geq P_2$$

$$H_1 : P_1 < P_2$$

---

***R8:*** Doctors with higher salaries are more willing to introduce computers at universities.

***Alternative:*** Doctors with higher salaries are not more willing to introduce computers at universities.

$$S8: H_0 : P_1 \geq P_2$$

$$H_1 : P_1 < P_2$$

---

***R<sub>9</sub>*** : Doctors working in other institutes have more the will to introduce computers at universities.

***Alternative:*** Doctors working in other institutes do not have more the will to introduce computers at universities.

$$S_9 : H_0 : P_1 \geq P_2$$

$$H_1 : P_1 < P_2$$

---

***R<sub>10</sub>*** : Doctors teaching in private universities have more concern about their students's attitudes towards computer introduction.

***Alternative:*** Doctors teaching in private universities do not have more concern about their students's attitudes towards computer introduction.

$$S_{10} : H_0 : P_1 \geq P_2$$

$$H_1 : P_1 < P_2$$

---

***R<sub>11</sub>*** : Doctors working in other institutes are less concerned about their students' attitudes towards computer introduction.

***Alternative:*** Doctors working in other institutes are not less concerned about their students' attitudes towards computer introduction.

$$S_{11} : H_0 : P_1 \leq P_2$$

$$H_1 : P_1 > P_2$$

## Operational Definition of Terms

For the reliability and the clarity of the study the researcher has defined the terms used in the study :

- *CONCERN*: A term to measure the concern of university teachers about computers and their students' attitudes towards the computer and its introduction .

- *WILLINGNESS*: This term is to measure the willingness of the university teachers to accept computer introduction in the university, and consequently to measure the concern of the instructors about their personal and professional status in case of a computer introduction .

- *KNOWLEDGE ABOUT COMPUTERS :*  
*(RESOURCES AND POSSIBILITIES)*

This term is to assess the attitude of the instructor towards knowledge about computers . Is the instructor really interested in discussing the possibilities of introducing computers in his/her teaching methods ?

- ***OTHER ALTERNATIVES:*** This term is to identify the instructors who do have other alternatives to computer introduction in the university.

- ***R:*** This letter is used to state that a research hypothesis will be followed .

- ***S:*** This letter is used to state that a statistical hypothesis will be followed .

- ***ALTERNATIVE:*** This term is used to state the alternative of the research question. It was put with the research question for clarification and ease of comprehension.

### **Description of Chapters .**

This study is divided into five chapters :

The first chapter deals with the purpose of the study , the need for the study ,and the statement of the problem . It also states the research and statistical hypothesis ; finally , It includes a paragraph to define the operational terms. The second chapter reviews the major studies carried out by researchers and includes a paragraph about how the future of computers was forecasted between 1965 and 1970. The third chapter deals with the procedures and methodology pursued to conduct this study . The fourth chapter represents a detailed analysis of the survey results . The last chapter is the concluding chapter : A conclusion will be drawn and some recommendations will be proposed .

## CHAPTER II

### REVIEW OF LITERATURE

#### INTRODUCTION

The problem of computers in education has been an intriguing subject for decades. Many have tried to study how a good training should be conducted to be able to produce capable teachers. They have revealed in their studies all kind of effective education and training. They have spoken about Effective Inservice Education and Microcomputer Inservice Programs .

They have also spoken about the Process of Innovation which should be applied in order to get the maximum output from teachers who are faced with this new innovation . This also would make the instructor more lenient toward innovation instead of the usual rejection to changes. This process took into consideration both preservice and practicing teachers.

To be more specific, some researchers have related the stage of concern to this innovation , to its level of use and to the way it has been adapted. They have concluded that some evidences on the behavior of the instructor always show along this stage of concern during innovation.

Some researchers have conducted field researches to find the outcome of teacher training in an inservice programs while other researchers have included in their studies instructors with previous knowledge about computers, (not related to education) and another group with no relation what so ever to computers, and they have conducted a research to know the outcome and study the difference between these two groups.

Few researchers have written about the importance of computers in education and how it opens new ideas and horizons that did not exist before.

Others have tackled the subject of computers and its direct relation to society. They have talked about a trend stating that whatever happens in the society related to computers will be revealed in the education field shortly afterwards.

Actually ,as it will be shown ,some researchers have gone to the extent of doubting the importance of the instructor in the classroom stating that sometimes this teacher may himself/herself become a hindrance .

In this chapter , a review of the literature will be stating the main ideas of the researchers who conducted a study about subjects related to the main theme of this research.

## RELATED RESEARCH

### 1. *Effective Inservice Education.*

Joyce and Showers (1980) have identified five components of inservice training and have investigated the impact of these on teachers.

The components are :

- 1) presentation of theory ;
- 2) modeling or demonstration of skills ;
- 3) practice in simulated and classroom settings ;
- 4) structured and open-ended feedback about performance ;
- 5) coaching for application (hands-on,in-classroom assistance with the transfer of skills and strategies to the classroom .

They have looked at how each of these components affected :

- a)awareness of a particular topic ;
- b)acquisition of concepts and knowledge about the topic;
- c) development of skills;transfer of skills to the classroom;

They have found that :

- presentation of theory and modeling (1 and 2 ) affected awareness and knowledge (a and b ), but had little effect on skills or transfer (c).
- practice under simulated conditions (small groups or practice with peers)(3) seemed to be an efficient way to acquire skills (b), and some teachers transferred these to the classroom (c) ;
- structured feedback (4) , that is , regularly utilizing a system of observation ( by self, peer , or supervisor ) and reflecting on the results of the observation can affect the teacher's awareness of his/her practice and also impact skills and their use in the classroom (c);
- assistance from a peer , consultant , or supervisor is needed by some teachers (5) to develop a specific plan to utilize a new approach (c).

The research by Joyce and Showers suggests that it is best to include all components in a training program since this assures that the maximum number of teachers will progress to the transfer level. It is only after this level that any impact on students can be expected.



## 2. *Microcomputer inservice programs.*

Although there are some articles on providing inservice education for teachers about microcomputers [ Bork (1981) ; Archer (1981) ; Hopping (1983) ; Sadowski (1983) ; Electronic Learning (1983 -1984) ] they are , for the most part , recommendations for topics to be included for descriptions or activities.

Most articles about providing microcomputer inservice education for teachers assume the familiar delivery system of a trainer and a series of one or more workshops [Electronic Learning (1983 - 1984) ; Sadowski (1983).

Bork (1981) strongly recommends using the computer itself as the vehicle for providing training. He does not , however , "address the question of teachers' readiness to learn"<sup>1</sup> the material he would include in the six topics he suggests for inclusion in a computer inservice sequence. He does say that not all teachers will want to cover everything and that they should be encouraged to select on the basis of interest.

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<sup>1</sup>-Duncan, k.a. and D.I. Harris (editors) . Computers in Education .(Netherlands : ELSEVIER SCIENCE PUBLISHERS B.V. 1985) page 768.

In a recent letter, Bork (1984) stated that a project designed to identify teacher characteristics associated with successful uses of computers found few such uses. In fact , he and a colleague found that " current classroom usage is often a tragedy "<sup>2</sup>.

An article by Wells and Bitter (1982) discusses a four-week summer institute that was presented at the University of Arizona. The article includes a set of recommendations for changes in the program based on their experience , but it does not assess the effectiveness of the institute in terms of how microcomputers have been later used. The authors suggest increasing the amount of time spent on user skills such as loading , saving and running programs , as well as using educational software and demonstrating class management programs or programming techniques. The authors go on to say that "special programming classes should be offered for teachers who want to learn this skill"<sup>3</sup>.

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<sup>2</sup>-Duncan, k.a. and D.I. Harris (editors) . Computers in Education .(Netherlands : ELSEVIER SCIENCE PUBLISHERS B.V. 1985) page 768.

<sup>3</sup>- Ibid , page 768.

### 3. *The Process of Innovation Adoption.*

The previous recommendations might have been anticipated , if the authors had used a " Concerns-Based Model for the Delivery of Inservice " developed by Hall , Loucks & Hord (1980) as shown in Appendix C. The model rests on the assumptions that change is :

A process

Made by individuals first

A highly personal experience

Entails developmental growth in feeling and skill

All teachers , both preservice and practicing , go through a developmental sequence in adopting any innovation . Different activities are appropriate for each stage of concern. Appendix D summarizes some of the work of hord and Loucks (1980) showing types of training related to each stage.

Leary ' s (1983) research has demonstrated that an inservice program geared to teachers' assessed Stage of Concern (SoC) "has a predictable influence on their stages of concern about an innovation"<sup>4</sup> , their Level of Use (LoU) of that innovation, and the way the it is adapted for use by the adopting teachers.

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<sup>4</sup>-Duncan, k.a. and D.I. Harris (editors) . Computers in Education .(Netherlands : ELSEVIER SCIENCE PUBLISHERS B.V. 1985) page 768.

There is some evidence that changes in attitudes reflected in Stage of Concern, precede changes in behavior evidenced in Level of Use of an innovation (Leary, 1983).

Dormant (1980) lists some of the mistakes which can lead to the rejection of an innovation. Rejection may occur if :

- stages are skipped ;
- the sequence of training activities is not the same as the sequence of SoC (e.g. , providing skills training before giving a demonstration of how the innovation can be used) ;
- not enough time is provided at each stage ;
- individual differences are ignored in the rate at which teachers move through the stages.

Marlaine E. Lockheed in her book Educational Technology stated in chapter 7 an experiment that took place in Norway between 1984 and 1988. This study undertook different phases, and one of these was a training program for teachers.

The study was implemented on twenty-six selected schools and universities involving all the teachers. This is in addition to many other educational institutions where partial involvement from students and teachers took place.

Marlaine Lockheed stated in this book that according to a report on the program by the Norwegian organization , International Learning Cooperative (IMTEC) , at least two years of in-service training are required for fifty percent of the teachers to feel that they have mastered the use of computers in their teaching and in their classes. After this two-year training effort, only twenty-five percent of the trained teachers have regularly tried out new software or have felt that they have mastered the computer adequately to use for word processing and design of pedagogical software . Only fifteen percent feel that they are able to make new teaching plans with the computer.

These figures (IMTEC , 1987) point to the tremendous importance of thorough and long-term teacher training in order to implement computers in education . Information technology should be an integral part of the teaching method for a particular subject , or it is likely that it will not be used effectively .

Under these circumstances , Lockheed states that the most important change in teacher training should be to integrate computer technology into subjects and teaching methods as they are presented during teacher training courses.

This will be far more effective than offering separate and specialized computer courses for teachers. With such separate courses, individual teachers have to struggle to incorporate the computer technology into their ongoing teacher training curriculum. In preservice, in-service, and post-graduate education, computer technology should be integrated into the courses on various subjects and the methods courses rather than being provided as a separate course or workshop.

This study went to show problems that occurred during its implementation. A major problem in the implementation of a policy of this kind, however, is the lack of experience and competence among teacher trainers themselves. Academically trained in their respective subjects, the staff of teacher training institutions are rather reluctant to make changes in their daily work. Many faculty members may like using word processing to compose lecture notes or organize equipment, but fewer will use a computer for such purposes as improving a presentation on how to teach art, ecology, or writing.

On the other hand, Richard Grice with some other colleagues of his conducted a study from 1987 to 1989 at the University of Queensland, Australia. In this study, he tried to identify the basic skills and abilities in the areas of literacy, numeracy, and scientific knowledge that are most likely to emerge in the coming information age. Particular emphasis was put by the

researchers on the impact of information technology on lifestyles and workplace. In this study they included the instructors for they were considered to have "a particular interest in, and/or expert knowledge of, the topic of the study"<sup>5</sup>.

S. Kim Maggregor conducted a study and touched the issue of teacher training and how it should be done in order to have the best outcome from their capabilities . Maggregor stated that "although a small percentage of the participating teachers had used computers for personal reasons , none had experience using the computer for instruction"<sup>6</sup>. Informal sessions were held whenever it was needed to help the teachers. They were also encouraged to take computers with them at home during holidays and semester breaks to become familiar with the equipment and the software in the comfort of their homes .

The teachers who took advantage of this extra "opportunity demonstrated greater confidence in using the equipment at school "<sup>7</sup>.

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<sup>5</sup>-McDougall , A. and C. Dowling (editors) .Computers in Education.(Netherlands: ELSEVIER SCIENCE PUBLISHERS B.V. 1990) Page98.

<sup>6</sup>- Ibid , Page 129.

<sup>7</sup>- Ibid , Page 130.

Michael R. HANEY , the science , math , and computer science program coordinator of the Blair Magnet Program wrote from his experience in the subject of computer infusion in educational institutions that "significant changes in the curriculum have been possible because of computers"<sup>8</sup>. And, in his field , namely science and mathematics , he stated that the way these two materials are taught and how these are learned depend on the students' access to and understanding of computers.

One of the very important pieces was written by J.HEBENSTREIT,the head of computer science department (Ecole Superieure d'Electricite). He touched the matter of computers and society and then the matter of computers and teachers.

He stated that "the way computers are used in education has changed over the years in parallel to the way the use of computers has changed in general"<sup>9</sup>.

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<sup>8</sup>-McDougall , A. and C. Dowling (editors) . Computers in Education.(Netherlands: ELSEVIER SCIENCE PUBLISHERS B.V. 1990 ) Page 109.

<sup>9</sup>-Lovis F.B. and E.D. Tagg (editors).Informatics Education For All Students At University Level.(Netherlands: ELSEVIER SCIENCE PUBLISHERS B.V. 1984) Page 3 .



He said that this is normal for universities, after all, they are a part of society. Therefore , the most efficient method to try to understand how computers are going to be used in education in the next few years is to start the analysis from the society and to see how they are used in it.

Then he went to discuss a very major point where he wrote that " a computer,being able to print items, to ask questions and to grade answers, can therefore replace the teacher,with the advantage of never losing its temper and of allowing each student to progress at his own pace"<sup>10</sup>.

In his book COMPUTER-ASSISTED INSTRUCTION TESTING, AND GUIDANCE Wayne H. HOLTZMAN wrote that "the teacher may be necessary for learning under some circumstances and may actually be a hindrance under others"<sup>11</sup>. He said that computers will take over most of the drudgery of scheduling, allocating learning resources to individuals and groups , maintaining progress records while preserving confidentiality,compiling and scoring tests,providing easy access to files for reference to both students and teachers .

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<sup>10</sup>- Lovis F.B. and E.D. Tagg (editors).Informatics Education For All Students At University Level.(Netherlands: ELSEVIER SCIENCE PUBLISHERS B.V. 1984) Page 4 .

<sup>11</sup>-Holtzman , H. Wayne (editor) . Computer-Assisted instruction ,Testing,And Guidance .( New York : Harper and Row Publishers. 1970) Page 2.

Then he proposed few questions to be answered and kept constantly in as technology progresses. Some of the important questions were :

a- What technical and scientific problems must be solved before a computer system can be realized?

b- How would the individual and society be affected by such developments?

Finally , it may be helpful to state few numbers that Wayne H. Holtzman included in his book (Computer-Assisted Instruction, Testing, And Guidance ) almost two decades and a half ago (1970) to see what they thought the computer future will be and compare it with the actual facts.

Wayne stated that the growth rate in 1970 in the computer industry was so great , "increasing at an annual rate of nearly 40 percent"<sup>12</sup>, that most predictive studies made before had been unduly conservative .

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<sup>12</sup>-Holtzman , H. Wayne (editor) . Computer-Assisted instruction , Testing, And Guidance .( New York : Harper and Row Publishers. 1970) Page 5.

For example , a careful study by the American Federation of Information Processing Societies used past trends and a 1965 figure of 30,000 computers as a basis for estimating that by 1970 there would be 50,000 in the United States . However,the 50,000 mark was reached in half the time expected , early in 1968 rather in 1970. At that time it was estimated that by 1975 "the amount of computer power devoted solely to education will be equal to the entire computer output of all purposes in 1968"<sup>13</sup>. This clearly shows,Wayne stated ,that apparently "computer systems will soon be viewed as an essential part of any major educational institution"<sup>14</sup>.

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<sup>13</sup>-Holtzman , H. Wayne (editor) . Computer-Assisted instruction , Testing, And Guidance .( New York : Harper and Row Publishers.1970) Page 5 .

<sup>14</sup>- Ibid , page 8

## CHAPTER III

### PROCEDURES AND METHODOLOGY

#### **Introduction.**

This survey has been conducted in the first place with the intention to determine what possible effect computer can knowledge provide to a university teacher, and whether this effect is strong enough to alter his/her method of teaching .

#### **Population and Sample Selected.**

A field survey was conducted to test the hypothesis presented in chapter I . The survey , of course, was limited to university teachers and specifically to doctors (Ph.d , DA , ... holders) . Therefore , the main target of the study was universities.

The target population comprised of all universities which were divided into two main groups ; First , the public university which comprises the Lebanese university in all its faculties .

Faculties from different regions of Lebanon ( west Beirut, east Beirut , the mountain, the north ) teaching different majors (sociology , fine arts , law , biology ...) were chosen to assure a variety in the environment , surroundings , and all other conditions to be sincerely represented in the sample .

Second were the private universities which comprise A.U.B. , L.A.U. , U.S.J. , B.A.U. , and N.D.U. to assure different backgrounds and different conditions in order to bring the sample to represent the population the best way possible.

### **Instrumentation.**

A questionnaire was used to collect data from teachers who satisfy the criteria.They were supposed to be doctors and university teachers.

The questionnaire (Appendix A) was prepared, and it did not face any difficulty in being understood by all private university teachers .However , few problems were encountered with most public university teachers concerning the language . They complained that they could not answer the questionnaire if it was written in English , so a special careful translated Arabic version (Appendix B) was prepared and distributed to this sector in order to get the needed true response .

The dependent variables which measure the four different dimensions ,that will be stated afterwards in the same chapter, consist of several items ranging from strongly agree to strongly disagree on scale from zero to four :

These items are the following:

1-Is the instructor concerned about students' attitudes towards computer systems?

2- Does the instructor know any other approach that might work better?

3- Does the instructor have any idea about computer systems?

4-Is the instructor concerned about having enough time to organize himself/herself each day?

5- Is the instructor interested in helping other faculties in their use of computer systems?

6- How limited is the knowledge of the professor about computers?

7-Does the instructor want to know the effect of reorganization on his/her professional status?

8-Is the instructor concerned about the conflict between his/her interests and responsibilities?

9-Is the instructor concerned about revising his/her use of computers?

- 10- Is the instructor interested in developing working relationships with both his/her faculty and outside faculties using computer systems?
- 11-Is the instructor concerned about how computers affect students?
- 12- Is the instructor concerned about computers at all?
- 13- Is the instructor concerned about decision making in the new system (computer introduction)?
- 14- Is the instructor interested in discussing the possibility of using computer systems?
- 15- Is the instructor interested in knowing what resources are available if he/she decides to adopt computers?
- 16- Is the instructor concerned about his/her inability to manage all what computers require?
- 17- Is the instructor interested in knowing how his/her teaching or administration is supposed to change?
- 18- Is the professor interested in familiarizing other departments and persons with the progress of computers?

Almost all questions were answered and almost no missing cases were encountered . The first part of the questionnaire was prepared in a way that an answer could be easily picked out of three or four other answers .

The second part of the questionnaire was scored on a five-point scale ranging from zero (irrelevant) to 5 (very true of me now) . For example, if a statement about the concern of the instructor towards computers was answered by zero than it would mean that this statement is irrelevant to him/her and he/she does not find himself/herself a bit concerned about computers . However,if this same statement was answered by 5 , then, it would mean that this instructor is extremely concerned about computers.

Follow ups were undertaken to assure that the instructors filled the questionnaire properly and returned it on time.



### **Measurements Included in the Questionnaire.**

The following summarizes the headlines that were measured in the questionnaire presented in Appendix A.

#### **Knowledge about computers : Resources and Possibilities**

This measurement was assessed by three questions . Those questions are stated in the questionnaire in Appendix A under the numbers 27 , 28 , and 31 .

It was meant to measure the attitude of the instructor towards knowledge about computers . Is the instructor really interested in knowing and discussing the possibilities of introducing computers in his/her teaching methods ?

Is he/she interested in knowing what resources are available to decide whether to adopt computers in his teaching methods and is he/she ready to help introducing this method to other faculties?

## Concern

This measurement was to measure the concern of university teachers about computers and about their students' attitudes towards computers.

Three questions were included in the questionnaire to measure concern.

These questions are presented in Appendix A under the numbers 14 , 24 , and 25 .

This instrument meant to assess the degree of concern of the instructor towards computers to depict his/her approach in dealing with this technology and to assess his/her involvement in his/her students' attitude to decide what approach is the most suitable . This concern may affect the instructor's methodology in teaching and advise him/her to take a positive or negative point of view towards computers.

### Willingness

Four questions were inserted in the questionnaire to measure the willingness of the instructor to introduce computer systems in the university and consequently the concern of the instructors about their personal and professional status if this new method was introduced. These questions are shown in the questionnaire in Appendix A under the numbers 17, 20, 29, and 30. This section was meant to measure the effect of microcomputers on teaching methods specially under the criteria already stated in chapter one ;in other words computers were introduced into universities without enough and proper training to the instructors which lead sometimes to a situation where the student had more knowledge about this instrument than his/her instructor .

### Other Alternatives

Only one question was introduced in the questionnaire to measure whether the instructors think that there are other or better ways to be used in their teaching methods. This question is shown in Appendix A under number 15 , and it gives an idea about how ready the instructor is to initiate a program in his/her teaching methods including microcomputers and whether he/she is still reluctant about using this method of teaching .

### **Data Analysis.**

Responses were analyzed by means of the statistical package SPSS(Statistical Package for Social Sciences).

This facility was used primarily :

- To study the frequency and therefore the percentage of instructors responding to every question at a certain answer .
- To study the various aspects related to the effect of computers at home on the teaching methods.
- To validate the reliability of the questionnaire used as a measure in this sample for the various variables included . A factor analysis was done on all the question items.
- To build a regression analysis equation that includes the variables that are most likely to be associated with the effect on teaching methods. Therefore, a multiple regression analysis was used.
- To measure the relationships between variables. Therefore a CHI-SQUARE analysis was conducted.

The findings of the analysis as obtained from the analysis presented above will be stated in the following chapter .

## **CHAPTER IV**

### **Introduction.**

In this chapter the findings of the study will be presented along with the characteristics of the sample and will be discussed accordingly.

The presentation will be in three different sections . The first section will be under percentage analysis . The second section will be under CHI-SQUARE analysis, and the third section will be the regression analysis. Every and each of these analysis will be clarified stating what it measures under its section.

### **SECTION A**

#### **PERCENTAGE ANALYSIS**

This section will deal mainly with the characteristics of the sample. Highlights will be thrown on both the frequency of the sample meaning how many of the sample answered a certain question and on the percentage which clarifies exactly the percent of the sample answering every question.

This section will be notably clarified with tables to enable a clearer view.

Table 4-1  
A distribution of the personal characteristics of the sample by I.D

<u>I.D</u>	<u>Frequency</u>	<u>Percent</u>
- Private	25	32.9
- Public	51	67.1

This sample took into consideration that many doctors teach courses in different private universities. This is also true in the public universities, but due to the different teaching systems this phenomena is less observed here than in the private universities. Therefore, the sample shows that it has almost twice teachers from the public universities (67.1%) than from the private universities (32.9%).

Table 4-2  
A distribution of the personal characteristics of the sample by age

<u>- Age:</u>	Frequency	Percent
-25 to 39	29	38.2
- 39 and above	47	61.8

This table shows that the distribution is more deviated towards the persons aged above 39, for they are Ph.d holders (61.8% are above 39), and that 29 persons out of the sample (38.2%) are below 39.

Table 4-3  
A distribution of the personal characteristics of the sample by gender

<u>GENDER :</u>	Frequency	Percent
- Male	59	77.6
- Female	17	22.4

This table shows that the sample constitutes of more males (77.6%) than females (22.4%).

Table 4-4  
A distribution of the personal characteristics of the sample by social status

<u>SOCIAL STATUS:</u>	Frequency	Percent
- Single	22	28.9
- Married	49	64.5
- Divorced	5	6.6

Table 4-4 indicates that 64.5% of the sample are married while 28.9% are single and 6.6% are divorced.

Table 4-5  
A distribution of the personal  
characteristics of the sample  
by Degree(level of education)

<b><u>DEGREE:</u></b>	Frequency	Percent
- Ph.d	61	80.3
- Otherwise (DA-Ed.D-3eme Cycle...)	15	19.7

This table demonstrates that Ph.d holders count about third of the whole sample (22 out of sample or 28.9%) .And 71.1% of the sample count for all other educational levels.



Table 4-6  
A distribution of the personal  
characteristics of the sample  
by origin of degree

<u>ORIGIN OF DEGREE:</u>	Frequency	Percent
- United States	22	28.9
- France	15	19.7
- U.K	8	10.5
- Russia	13	17.1
-Lebanon	15	19.7
-India	1	1.3
-Germany	1	1.3
- Egypt	1	1.3

This table demonstrates that the sample includes more university teachers from the United States (28.9%) than any other country. It is followed by France graduates (19.7%) and Lebanon (19.7%) . Then, it is followed by graduates from Russia (17.1%) , U.K (10.5%), and India,Germany,and Egypt (1.3% each).

Table 4-7  
A Distribution of the personal characteristics of the sample by rank

<u>Rank :</u>	Frequency	Percent
- Professor	26	34.2
- Associate Professor	17	22.4
-Assistant Professor	27	35.5
- Instructor	6	7.9

This table shows that the sample is mostly constituted by Assistant professors (35.5%) followed directly by professors by almost the same percent (34.2%). It is then followed by associate professors(22.4%) and finally instructors (7.9%).

Table 4-8  
A Distribution of the personal characteristics of the sample by experience

<u>EXPERIENCE :</u>	Frequency	Percent
- Less than 10 years	35	46.1
- 10 years and above	41	53.1

Table 4-8 shows that the sample consists of 53.1% of teachers who have experience for more than 10 years while 41% of the sample have experience for less than 10 years

Table 4-9  
A Distribution of the personal  
characteristics of the sample  
by teaching hours per week (load)

<u>TEACHING HOURS/WEEK :</u>	Frequency	Percent
- Less than 5	8	10.5
- 5 under 10	30	39.5
- 10 under 15	18	23.7
- 15 under 20	8	10.5
- 20 and above	12	15.8

Table 4-9 shows that 39.5% of the sample teach between 5 and 10 hours a week .Also it shows that 23.7 % teach between 10 and 15 hours per week .This table also shows that 10.5% of the teachers teach between 15 and 20 hours ,and also 10.5% of the sample teach less than 5 hours per week.

Table 4-10  
A Distribution of the personal  
characteristics of the sample  
by working in other institutes

<u>WORK IN OTHER INSTITUTES:</u>	Frequency	Percent
- YES	27	35.5
- NO	49	64.5

Table 4-10 states that the 35.5% of the sample work in other institutes beside their job at the university while 64.5% of the sample do not work in any job beside their job at the university.

Table 4-11  
A Distribution of the personal characteristics of the sample by travelling abroad

<u>TRAVEL ABROAD :</u>	Frequency	Percent
- YES	58	76.3
- NO	18	23.7

Table 4-11 demonstrates that the majority of the respondents (76.3%) do travel abroad while 23.7% of the sample do not travel abroad.

Table 4-12  
A Distribution of the personal characteristics of the sample by salary

<u>SALARY :</u>	Frequency	Percent
- Less than \$1000	24	31.6
- \$1000 and above	52	68.4

This table shows that the majority of the sample (68.4%) are paid \$1000 and above while 31.6% are getting paid less than \$1000 .

Table 4-13  
A Distribution of the personal characteristics of the sample by owning a computer at work

<u>OWN A COMPUTER AT WORK :</u>	Frequency	Percent
- YES	59	77.6
- NO	17	22.4

Table 4-13 shows that most of the respondents (77.6%) have a computer at work and 22.4% do not have a computer at work .

Table 4-14  
A Distribution of the personal characteristics of the sample by owning a computer at home

<u>OWN A COMPUTER AT HOME :</u>	Frequency	Percent
- YES	35	46.1
- NO	40	52.6
- Missing case	1	1.3

This table shows that 52.6% of the sample do not own a computer at home while 46.1% own a computer at home and one missing case was reported.

## **SECTION B**

### **ANALYSIS OF THE REALTIONSHIP BETWEEN VARIABLES.**

This part deals with the relationship between two variables. This section explains to us the direct relation between two variables. Actually its importance goes even further to show whether any relation exists at all between any two variables..

In the following sections efforts will be made to analyze few stated tables to depict the existing relations. It is worth pointing out that what is going to be mentionned later on is just because no other relations exist between any other two variables.

**Relation between OTHER ALTERNATIVES and DEGREE.**

Table 4-15

crosstabulation:Degree and Other alternatives

	<u>Ph.d</u>	<u>Other than Ph.d</u>	<u>Row Total</u>
<u>Disagree</u>	23(37.8%)	11(73.3%)	34 (44.7%)
<u>Neutral</u>	12(19.7%)	2 (13.3%)	14 18.4%)
<u>Agree</u>	26(43%)	2 (13.3%)	28(36.8%)
<b><u>Column Total</u></b>	61 (80.3%)	15(19.7%)	<b>76 (100%)</b>

<u>Chi-Square</u>	<u>Value</u>	<u>DF</u>	<u>Significance</u>
Pearson	6.48218	2	.03912
Likelihood Ratio	6.80416	2	.03330
Mantel-Haenszel test for Linear Association	6.38596	1	.01150

Minimum Expected Frequency - 2.763

Cells with expected Frequency < 5 - 1 of 6 (16.7%)

Number of missing observations : 0

In testing, the research hypothesis ( $R_1$ ) that was posed in chapter I was as follows :

$H_0$  : Doctors with Ph.d degree hold a more positive attitude towards using computers in education at a university level.

$H_1$  : Doctors with Ph.d degree do not hold a more positive attitude towards using computers in education at a university level.

Concerning the effect of Degree on having other alternatives to the introduction of the new system , the researcher wonders if any relation exists between them.

The relationship between the two variables Degree and Other alternatives is indicated on table 4-15.

If one agrees that those instructors who are neutral should not be counted on any part neither with agree or disagree , than table 4-15 shows that teachers with different levels of education hold different opinions .

In fact, it surprises that the difference between the proportions is significant but in the opposite direction .

This table shows that the majority of Ph.d holders , 26 out of 49 (53%) , agree that methods other than computers could work better while majority of non-Ph.d holders , 11 out of 13 (85%) , disagree with the statement that other alternatives than computers might work better in teaching methods at a university level.

Therefore, the relationship between the variables is significant at  $\alpha=0.05$ , and the null hypothesis is rejected.



**Relationship between OTHER ALTERNATIVES and ID.**

Table 4-16

crossstabulation: ID and Other alternatives

	<u>Private</u>	<u>Public</u>	<u>Row Total</u>
<u>Disagree</u>	16(64%)	18(35.2%)	34 (44.7%)
<u>Neutral</u>	5(20%)	9(17.6%)	14(18.4%)
<u>Agree</u>	4(16%)	24(47.2%)	28(36.8%)
<b><u>Column Total</u></b>	25 (32.9%)	51(67.1%)	<b>76 (100%)</b>

<u>Chi-Square</u>	<u>Value</u>	<u>DF</u>	<u>Significance</u>
Pearson	7.53313	2	.02313
Likelihood Ratio	8.04947	2	.01787
Mantel-Haenszel test for Linear Association	6.88937	1	.00867
Minimum Expected Frequency - 4.605			
Cells with expected Frequency < 5 - 1 of 6 (16.7%)			

Number of missing observations : 0

In testing, the research hypothesis ( $R_2$ ) that was posed in chapter I was as follows :

**$H_0$ :** Doctors teaching in private universities hold a more positive attitude towards using computers in education at a university level.

**$H_1$ :** Doctors teaching in private universities do not hold a more positive attitude towards using computers in education at a university level.

As for the effect of whether the fact that the teacher is in public or private university may affect his/her opinion on having other alternatives to using computer systems, the researcher has studied the possibility of an existing relation.

The relationship between the two variables ID and Other alternatives is indicated on table 4-16.

Holding the same assumption of not counting any of the neutral instructors in neither the agree or disagree part than Table 4-16 shows that teachers in the public universities differ in opinion from those in private universities.

This table clearly shows that the majority of the instructors in private universities, 16 out of 20 (80%), disagree with the idea of having other alternatives that might work better other than introducing computers to university education while the majority of the teachers in public universities, 24 out of 42(57%), agree about having better alternatives than introducing computer system.

Therefore, the relation between ID and Other Alternatives is significant at  $\alpha=0.05$ , and the null hypothesis is accepted.

**Relationship between WILLINGNESS and AGE.**

Table 4-17  
crosstabulation: Age and Willingness

	<u>Old</u>	<u>Young</u>	<u>Row Total</u>
<u>Disagree</u>	31(65.9%)	8(27.6%)	39 (51.3%)
<u>Agree</u>	16(34.1%)	21(72.4%)	37 (48.7%)
<b><u>Column Total</u></b>	47 (61.8%)	29(38.2%)	<b>76 (100%)</b>

<u>Chi-Square</u>	<u>Value</u>	<u>DF</u>	<u>Significance</u>
Pearson	10.56951	1	.00115
Continuity Correction	9.08939	1	.00257
Likelihood Ratio Linear Association	10.85975	1	.00098
Mantel-Haenszel test for Linear Association	10.43044	1	.00124

Minimum Expected Frequency - 14.118

Number of missing observations : 0

In testing, the research hypothesis ( $R_3$ ) that was posed in chapter I was as follows :

$H_0$ : The younger the instructor is, the more positive his/her attitude will be towards computer as a medium of change of his/her professional status.

$H_1$ : The younger the instructor is does not mean the more positive his/her attitude will be towards computer as a medium of change of his/her professional status.

The researcher wonders if any relation could exist between age and willingness .

The relationship between the two variables Age and Willingness is indicated on table 4-17.

In this table 4-17 our sample was divided only between those who agree and those who do not agree .Therefore, the table was studied according to the given.

Table 4-17 holds the following criteria. Most of the teachers aged above 39, 31 out of 47 (65.9%), strongly disagree which means that they are strongly unwilling to introduce computers as an educational system in universities. On the other hand the majority of the teachers aged below 39 ,21 out of 29(72.4%) , strongly agree which means that they are strongly willing to introduce computers as an educational means in universities.

Therefore, the relation that exists between age and willingness is significant at  $\alpha=0.05$ , and the null hypothesis is accepted .

**Relationship between WILLINGNESS and DEGREE .**

Table 4-18  
crosstabulation: Willigness and Degree

	<u>Other than Ph.d</u>	<u>Ph.d</u>	<u>Row Total</u>
<u>Disagree</u>	4(26.7%)	35(57.4%)	39 (51.3%)
<u>Agree</u>	11(73.3%)	26(42.6%)	37 (48.7%)
<b><u>Column Total</u></b>	15 (19.7%)	61(80.3%)	<b>76 (100%)</b>

<u>Chi-Square</u>	<u>Value</u>	<u>DF</u>	<u>Significance</u>
Pearson	4.54505	1	.03301
Continuity Correction	3.39890	1	.06524
Likelihood Ratio	4.67705	1	.03057
Linear Association			
Mantel-Haenszel test for Linear Association	4.48525	1	.03419

Minimum Expected Frequency - 7.303

Number of missing observations : 0

In testing, the research hypothesis ( $R_4$ ) that was posed in chapter I was as follows :

$H_0$ : Doctors with Ph.d degree hold a more positive attitude towards the willingness to introduce computers in education at a university level.

$H_1$ : Doctors with Ph.d degree do not hold a more positive attitude towards the willingness to introduce computers in education at a university level.

The researcher wonders if any relation could exist between degree and willingness .

The relationship between the two variables Degree and Willingness is indicated on table 4-18 .

This table is divided into two parts those who agree and those who disagree, and it clearly shows that the majority of the Ph.d holders , 35 out of 61 (57.4%) ,disagree, therefore they are not willing to introduce computers as an educational means .

However, on the other hand table 4-18 also shows that the majority of non Ph.d holder ,11 out of 15 (73.3%), agree, hence, they are willing to introduce computers in universities. Therefore, the relation exists between Degree and Willingness, and it is significant at  $\alpha=0.05$ , but to the surprise of the researcher it is on the opposite direction , and the null hypothesis is rejected.

**Relationship between WILLINGNESS and EXPERIENCE.**

Table 4-19  
crosstabulation: Experience and Willingness

	<u>Less than 10 years</u>	<u>More than 10 years</u>	<u>Row Total</u>
<u>Disagree</u>	12(34.3%)	27(65.9%)	39 (51.3%)
<u>Agree</u>	23(65.7%)	14(34.1%)	37 (48.7%)
<b><u>Column Total</u></b>	35 (46.1%)	41(53.9%)	<b>76 (100%)</b>

<u>Chi-Square</u>	<u>Value</u>	<u>DF</u>	<u>Significance</u>
Pearson	7.53168	1	.00606
Continuity Correction	6.32108	1	.01193
Likelihood Ratio	7.65775	1	.00565
Linear Association			
Mantel-Haenszel test for Linear Association	7.43258	1	.00641

Minimum Expected Frequency - 17.039

Number of missing observations : 0

In testing, the research hypothesis ( $R_5$ ) that was posed in chapter I was as follows :

$H_0$ : Doctors with less experience than others hold a more positive attitude towards the willingness to introduce computers in education at a university level.

$H_1$ : Doctors with less experience than others do not hold a more positive attitude towards the willingness to introduce computers in education at a university level.

The researcher wonders if a relation could exist between experience and willingness .

The relationship between the two variables experience and Willingness is indicated in a crosstabulation in table 4-19.

The researcher has tried to see whether the number of years of experience may affect the willingness to introduce computers into universities.

Table 4-19 states that the majority of the instructors who have an experience above 10 years ,27 out of 41(65.9%) , disagree, and consequently they are not very willing to introduce computers in education at a university level.

However, it can be seen that most of the instructors with less than 10 years as experience ,23 out of 35(65.7%) , agree and therefore they are willing to introduce computers in universities .

It can be said that the relation between the number of years of experience and willingness is significant at  $\alpha=0.05$ , and the null hypothesis is accepted.



**Relationship between WILLINGNESS and OWNING A COMPUTER AT WORK.**

Table 4-20  
crosstabulation: Own a PC at work and Willingness

	<u>Own a computer at work</u>	<u>do not own a computer at work</u>	<u>Row Total</u>
<u>Disagree</u>	35(59.3%)	4(23.5%)	39(51.3%)
<u>Agree</u>	24(40.7%)	13(76.5%)	37(48.7%)
<b><u>Column Total</u></b>	<b>59 (77.6%)</b>	<b>17(22.4%)</b>	<b>76 (100%)</b>

<u>Chi-Square</u>	<u>Value</u>	<u>DF</u>	<u>Significance</u>
Pearson	6.76761	1	.00928
Continuity Correction	5.41074	1	.02001
Likelihood Ratio Linear Association	7.02705	1	.00803
Mantel-Haenszel test for Linear Association	6.67856	1	.00976

Minimum Expected Frequency - 8.276

Number of missing observations : 0

In testing, the research hypothesis ( $R_6$ ) that was posed in chapter I was as follows :

$H_0$ : Doctors who own a computer at work are more willing to introduce computers in education at a university level.

$H_1$ : Doctors who own a computer at work are not more willing to introduce computers in education at a university level.

The researcher wonders if any relation could exist between owning a computer at work and willingness .This relation between the two variables is indicated in a crosstabulation shown in table 4-20.

The researcher wonders if any relation could exist between owning a computer at work (at the university or at his/her work outside the university if he has any) and the willingness of introducing computers in universities.

Table 4-20 holds the following criteria. Most of the teachers who do own a computer at work ,35 out of 59(59.3%), disagree which means that they are not willing to introduce computers in universities. On the other hand, the majority of the teachers who do not own a computer at work ,13 out of 17(76.5%) , strongly agree, and consequently they are willing to introduce computers in universities.

Therefore, a relation exists between owning a computer at work and the willingness to introduce computers as a new system of education at universities, and it is significant at  $\alpha=0.05$ , but it is in the opposite direction,therefore, the null hypothesis is rejected.

**Relationship between WILLINGNESS and ID.**

Table 4-21  
crosstabulation: ID and Willingness

	<u>Private</u>	<u>Public</u>	<u>Row Total</u>
<u>Disagree</u>	18(72%)	21(41.2%)	39(51.3%)
<u>Agree</u>	7(28%)	30(58.8%)	37(48.7%)
<b><u>Column Total</u></b>	25(32.9%)	51(67.1%)	<b>76 (100%)</b>

<u>Chi-Square</u>	<u>Value</u>	<u>DF</u>	<u>Significance</u>
Pearson	6.38002	1	.01154
Continuity Correction	5.20588	1	.02251
Likelihood Ratio	6.55364	1	.01047
Linear Association			
Mantel-Haenszel test for	6.29607	1	.01210
Linear Association			

Minimum Expected Frequency - 12.171

Number of missing observations : 0

In testing, the research hypothesis (R7) that was posed in chapter I was as follows :

***H<sub>0</sub>***: Doctors teaching in private universities are more willing to introduce computers at universities.

***H<sub>1</sub>***: Doctors teaching in private universities are not more willing to introduce computers at universities.

The researcher wonders if any relation could exist between teaching in private or public universities and willingness .

The relationship between the two variables ID and Willingness is indicated in a crosstabulation shown in table 4-21.

Table 4-21 shows that the majority of the teachers in public universities ,30 out of 41(58.8%) , agree which means that they are willing to introduce computers in the universities as a new system of education.On the other, hand the majority of the instructors in the private sector ,18 out of 25(72%) , strongly disagree which means that they are not willing to introduce computers in universities.

Therefore, the relationship between the ID of the university (whether it is public or private) and Willingness is significant at  $\alpha=0.05$ , but on the opposite direction, and the null hypothesis is rejected.

**Relationship between WILLINGNESS and SALARY .**

Table 4-22  
crosstabulation: Salary and Willingness

	<u>Below \$1000</u>	<u>Above \$1000</u>	<u>Row Total</u>
<u>Disagree</u>	7(29.2%)	32(61.5%)	39(51.3%)
<u>Agree</u>	17(70.8%)	20(38.5%)	37(48.7%)
<b><u>Column Total</u></b>	24(31.6%)	52(68.4%)	<b>76 (100%)</b>

<u>Chi-Square</u>	<u>Value</u>	<u>DF</u>	<u>Significance</u>
Pearson	6.88804	1	.00868
Continuity Correction	5.65321	1	.01742
Likelihood Ratio Linear Association	7.03819	1	.00798
Mantel-Haenszel test for Linear Association	6.79740	1	.00913
Minimum Expected Frequency -	11.684		

Number of missing observations : 0

In testing, the research hypothesis ( $H_0$ ) that was posed in chapter I was as follows :

**$H_0$ :** Doctors with higher salaries are more willing to introduce computers at universities.

**$H_1$ :** Doctors with higher salaries are not more willing to introduce computers at universities.

The researcher wonders if any relation could exist between salaries and willingness .

The relationship between the two variables Salaries and Willingness is indicated in a crosstabulation shown in table 4-22.

In this table 4-22 the sample is divided only between those who agree and those who do not agree .

Table 4-22 holds the following criteria. Most of the teachers whose salary is below \$1000 ,17 out of 24(70.8%) , agree and therefore have the will to introduce computers in universities. On the other hand, the majority of the teachers whose salary is above \$1000 ,32 out of 52(61.5%), disagree which means they do not really have the will to introduce computers as a teaching method in universities.

Therefore, the relation between salary and willingness is significant at  $\alpha=0.05$ , but to the surprise of the researcher it contradicts his/her hypothesis, and the null hypothesis is rejected.

**Relationship between WILLINGNESS and WORKING IN OTHER INSTITUTES .**

Table 4-23  
crossstabulation: Work in Other Institutes and Willingness

	<u>Do not work in other institute</u>	<u>work in other institute</u>	<b><u>Row Total</u></b>
<u>Disagree</u>	30(61.2%)	9(33.3%)	39(51.3%)
<u>Agree</u>	19(38.8%)	18(66.7%)	37(48.7%)
<b><u>Column Total</u></b>	49(64.5%)	27(35.5%)	<b>76 (100%)</b>

<u>Chi-Square</u>	<u>Value</u>	<u>DF</u>	<u>Significance</u>
Pearson	5.42051	1	.01990
Continuity Correction	4.36158	1	.03676
Likelihood Ratio	5.49610	1	.01906
Linear Association			
Mantel-Haenszel test for Linear Association	5.34919	1	.02073

Minimum Expected Frequency - 13.145

Number of missing observations : 0

In testing, the research hypothesis ( $R_0$ ) that was posed in chapter I was as follows :

$H_0$ : Doctors working in other institutes have more the will to introduce computers at universities.

$H_1$ : Doctors working in other institutes do not have more the will to introduce computers at universities.

The researcher wonders if any relation could exist between Working in other institutes and Willingness .

The relationship between the two variables Working in other institutes and Willingness is indicated in a crosstabulation shown in table 4-23.

The researcher has tried to see whether working in an institute beside the university may affect such willigness.

Table 4-23 states that the majority of the instructors who work in places beside their work at the university , 18 out of 27(66.7%), agree, leading to the conclusion that they have the will to introduce computers at universities.

However, it can be seen that most of the instructors who do not work in organizations other than the university ,30 out of 49(61.2%), where they teach disagree and it leaves the way to conclude that they are not very willing to introduce computers at the university as a teaching method .

Therefore, it can be said that the relation exists between working in other institutes beside the university and willingness, and it is significant at  $\alpha=0.05$ , and the null hypothesis is accepted.



**Relationship between CONCERN and ID .**

Table 4-24  
crosstabulation: ID and Concern

	<u>Private</u>	<u>Public</u>	<u>Row Total</u>
<u>Disagree</u>	16(64%)	19(37.3%)	35(46.1%)
<u>Agree</u>	9(36%)	32(62.7%)	41(53.9%)
<b><u>Column Total</u></b>	25(32.9%)	51(67.1%)	<b>76 (100%)</b>

<u>Chi-Square</u>	<u>Value</u>	<u>DF</u>	<u>Significance</u>
Pearson	4.83015	1	.02797
Continuity Correction	3.81361	1	.05084
Likelihood Ratio	4.86285	1	.02744
Linear Association			
Mantel-Haenszel test for Linear Association	4.76659	1	.02902

Minimum Expected Frequency - 11.513

Number of missing observations : 0

In testing, the research hypothesis ( $R_{10}$ ) that was posed in chapter I was as follows :

**$H_0$ :** Doctors teaching in private universities have more concern about their students's attitudes towards computer introduction.

**$H_1$ :** Doctors teaching in private universities do not have more concern about their students's attitudes towards computer introduction.

The researcher wonders if any relation could exist between the ID of the university where the instructor teaches and concern .

The relationship between the two variables ID and Concern is indicated in a crosstabulation shown in table 4-24.

The researcher has tried to seek if any relation exists between concern of the instructor on student's attitudes and the ID of the university(whether the instructor teaches in public or private university).

Table 4-24 could throw a light on whether such a relation exists .

This table shows that the majority of the instructors who teach in public universities ,32 out of 51(62.7%) , agree which means that they are concerned about student's attitudes towards introducing computer systems at the university.

On the contrary, this table also shows that the majority of the teachers who work in private universities , 16 out of 25(64%), disagree, and therefore do not hold a real concern towards student's attitudes when introducing computer systems at the university.

Therefore, a relation exists between concern and the ID of the university, and it is significant at  $\alpha=0.05$ , but to the opposite direction of the researcher hypothesis; hence, the null hypothesis is rejected.

**Relationship between CONCERN and WORKING IN OTHER INSTITUTES.**

Table 4-25  
crosstabulation: Work in Other Institutes and Concern

	<u>Do not work in other institute</u>	<u>work in other institute</u>	<u>Row Total</u>
<u>Disagree</u>	18(36.7%)	17(63%)	35(46.1%)
<u>Agree</u>	31(63.3%)	10(37%)	41(53.9%)
<b><u>Column Total</u></b>	49(64.5%)	27(35.5%)	<b>76 (100%)</b>

<u>Chi-Square</u>	<u>Value</u>	<u>DF</u>	<u>Significance</u>
Pearson	4.82015	1	.02813
Continuity Correction	3.82225	1	.05058
Likelihood Ratio	4.85216	1	.02761
Linear Association			
Mantel-Haenszel test for Linear Association	4.75673	1	.02910
Minimum Expected Frequency -	12.434		
Number of missing observations :	0		

In testing, the research hypothesis ( $R_{11}$ ) that was posed in chapter I was as follows :

$H_0$ : Doctors working in other institutes are less concerned about their students' attitudes towards computer introduction.

$H_1$ : Doctors working in other institutes are not less concerned about their students' attitudes towards computer introduction.

The researcher wonders if any relation could exist between the working in institutes beside the university and concern .

The relationship between the two variables working in other institutes and concern is indicated in a crosstabulation shown in table 4-25.

The researcher tries to seek if any relation exists between concern of the instructor on student's attitudes and him/her working in organizations beside his/her job at the university.

Table 4-25 could throw a light on whether such a relation do exists.

Table 4-25 shows that the majority of the teachers who do not work in institutes beside the university ,31 out of 49 (63.3%), agree, and therefore these teachers are concerned about their student's attitudes towards the introduction of computer systems at the university.

On the other hand, the majority of the instructors who work in institutes beside their jobs at the university ,17 out of 27(63%) ,disagree, and so they are less concerned about their student's attitudes towards computer introduction to universities.

Therefore, the relationship exists between working in other institutes and the concern about the students' attitudes about the introduction of a computer system, and it is significant at  $\alpha=0.05$ .The null hypothesis is accepted.

Table 4-26  
Regression Analysis

Equation 1 Dependent variable CONCERN

Method: Stepwise Criteria PIN .0500 POUT .1000

Age Education Experience Other-Work ID Salary Travelling  
Status Sex Own-PC-on-work Travels/year Teach-hours/week

Variable (s) Entered on Step Number

1.. Hours

Multiple R .34048  
R Square .11592  
Adjusted R Square .10068  
Standard Error 2.41808

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	1	44.46883	44.46883
Residual	58	339.13117	5.84709

F= 7.60529 Signif F = .0078

----- Variables in the Equation -----

Variable	B	SE B	Beta	T	Sig T
HOURS	.679951	.246558	.340478	2.758	.0078
(constant)	7.239473	.776431			

----- Variables not in the Equation -----

Variable	Beta In	Partial	Min Toler	T	Sig T
Age	.122250	.120948	.865348	.920	.3615
Education	-.210130	-.215115	.926524	-1.663	.1018
Experience	-.069186	-.064661	.772210	-.489	.6266
Other-Work	.070151	.074234	.989984	.562	.5763
ID	.219333	.213517	.837805	1.650	.1044
Salary	.019951	.021087	.987612	.159	.8740
Travelling	.025355	.026960	.999553	.204	.8394
Own-PC-on-work	-.029241	-.029815	.919128	-.225	.8226
Status	-.219976	-.226053	.933599	-1.752	.0851
Sex	-.090197	-.089903	.878314	-.682	.4983
Travels/year	-.155018	-.157456	.912100	-1.204	.2337

In taking CONCERN as a variable depending on the explanatory variables Age, Education , Experience , Other-Work , ID , Salary Travelling , Status , Sex , Own-PC-on-Work , Travels/year , and Teach-hours/week the researcher found that Concern is determined by one variable only and that variable is Teach-hours/week.

This variation Teach-hours/week or load affects directly the concern of the instructor towards his/her students' attitudes at the introduction of computers in universities.



This load actually puts the instructor in more direct contact with the students, and therefore creates some kind of involvement and better understanding to student's thinking and problems . No doubt that this direct contact also gives the student a feeling of security towards this particular instructor, and leads the student to express more and better his/her ideas to this specific instructor, hence, a better understanding and therefore more concern towards students' attitudes will be attributed to the instructor with more load or more teaching hours.

Table 4-27  
Regression Analysis

Equation 1      Dependent variable **Knowledge about computers**

Method: Stepwise Criteria    PIN .0500      POUT .1000

Age    Education    Experience    Other-Work    ID    Salary    Travelling

Status    Sex    Own-PC-on-work    Travels/year      Teach-hours/week

Variable (s) Entered on Step Number

1.. Status

Multiple R	.36196
R Square	.13102
Adjusted R Square	.11603
Standard Error	3.11342

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	1	84.76563	84.76563
Residual	58	562.21770	9.69341
F=	8.74467	Signif F =	.0045

----- Variables in the Equation -----

Variable	B	SE B	Beta	T	Sig T
STATUS	-2.466507	.834086	-.361962	-2.957	.0045
(constant)	9.045455	.663784		13.627	.0000

----- Variables not in the Equation -----

Variable	Beta In	Partial	Min Toler	T	Sig T
Age	-.065471	-.057737	.675809	-.437	.6640
Education	-.130346	-.137347	.964847	-1.047	.2996
Experience	-.042242	-.043968	.941458	-.332	.7409
Other-Work	.106787	.114335	.996172	.869	.3885
ID	-.009949	-.010460	.960492	-.079	.9373
Salary	.112262	.118292	.964847	.899	.3722
Travelling	.097912	.105021	.999748	.797	.4286
Own-PC-on-work	-.029783	-.031935	.999089	-.241	.8102
Sex	.047419	.046672	.841806	.353	.7256
Travels/year	-.167405	-.169345	.889239	-1.297	.1998
Teach-hours/week	-.031556	-.032709	.933599	-.247	.8057

In taking knowledge about computers as a function of explanatory variables age, Education , Experience , Other-Work , ID , Salary , Travelling , Status , Sex , Own-PC-on-Work , Travels/year , and Teach-hours/week the researcher found that Knowledge About Computers is determined by one variable only and that is Status. It stands to reason that single instructors have more knowledge about computers.

This reason comes from the fact that a single instructor has more time to spend on studying any new issue than a married or a divorced instructor.

A married instructor has to spend time with his/her family and naturally has more responsibilities to accomplish leading to less time given to his/her professional job.

This does not mean that a married instructor does not follow all new inventions, but in general he/she follows these inventions spending less time than a single instructor.

Therefore, a single instructor has less responsibilities and more time to follow recent breakthrough, and therefore more interest in knowing about them. He would be more interested in learning about computers.

Table 4-28  
Regression Analysis

Equation 1      Dependent variable **WILLINGNESS.**

Method: Stepwise Criteria    PIN .0500      POUT .1000

Age    Education    Experience    Other-Work    ID    Salary    Travelling  
Status    Sex    Own-PC-on-work    Travels/year      Teach-hours/week

Variable (s) Entered on Step Number

- 1.. Experience
- 2.. Other-Work
- 3.. Status

Multiple R                      .60013  
R Square                        .36016  
Adjusted R Square            .32588  
Standard Error                3.58139

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	3	404.30710	134.76903
Residual	56	718.27623	12.82636
F=	10.50719	Signif F =	.0000

----- Variables in the Equation -----

Variable	B	SE B	Beta	T	Sig T
EXPERIENCE	-3.526534	.967356	-.404007	-3.646	.0006
OTHER-WORK	4.204596	1.250434	.362263	3.363	.0014
STATUS	-2.254384	.989407	-.251157	-2.279	.0265
(constant)	6.437450	1.623687		3.965	.0002

----- Variables not in the Equation -----

Variable	Beta In	Partial	Min Toler	T	Sig T
Age	.120589	.101923	.457093	.760	.4506
Education	-.013576	-.013016	.588096	-.097	.9234
ID	.147238	.172668	.879947	1.300	.1990
Salary	-.057860	-.062271	.741120	-.463	.6454
Travelling	.065513	.076666	.876227	.570	.5708
Own-PC-on-work	.154459	.189197	.902896	1.429	.1587
Sex	.069154	.074266	.737918	.552	.5830
Travels/year	-.191862	-.218647	.830960	-1.662	.1023
Teach-hours/week	-.042223	-.044912	.723919	-.333	.7401

In taking WILLINGNESS as a function of explanatory variables age, Education , Experience , Other-Work , ID , Salary , Travelling, Status , Sex , Own-PC-at-Work , Travels/year , and Teach-hours/Week the researcher found that it is determined by three variables. These variables are Experience , Other-Work , and Status.

An explanation will be given to why these three variables affect the willingness of the instructor to introduce computers to his/her teaching methods.

First, explanation will be given to EXPERIENCE. The less experienced the instructor is, the more concerned he/she would be about his personal and professional status. This instructor did not master or at least found the best way to teach his/her courses. A new system would not really create a mess or a revolution in his/her teaching methods. On the other hand, a doctor who spent 10 years or more conducting his/her classes in a certain way will find it difficult to change and adopt the new system of teaching.

The less experienced the instructor is, the more willing he/she would be to introduce computers.

Second, Having a Work Beside the University job will be explained. Actually not having a second job would make the instructor more concerned about his/her personal and professional status. An instructor having a second job would feel more secure about his/her future from two main aspects:

a- morally

b- Financially

Morally, it is very hard for a doctor teaching at a university to think even about being insecure because of the introduction of a new system. Not having a second job and under new teaching methods, an instructor might think that it is hard for him/her to adapt to the new system and begins to feel insecure. Therefore, having a second job will make the instructor less concerned about his/her professional status and therefore more willing to introduce computers in education.

Financially, It is more secure for the instructor who have a second job and this helps him/her to be less concerned about his/her personal and professional status at the university because of the introduction of the computer system.

Therefore , not having a second job will create a feeling of concern to the instructor about his/her personal and professional status at the university, and consequently he/she will be unwilling to introduce the computer system as a teaching method.

Third,the status will be explained . Being married ,no doubt , will create more responsibilities to this instructor and would make him/her very concerned about his/her job for many reasons :

a- He/she needs the job to make money to spend on his/her family.

b-A married man/women likes stability for it secures his/her future.

c-A married man/woman dislikes high risks, for it may jeopardize his/her professional status and consequently his/her family's stability.

Therefore, if the instructor is single he/she does not have a big problem about any unfortunate thing that could happen. He/she does not have a family to feed and educate...

A single instructor does not really feel so much concerned about his/her personal and professional status at the university in case of the introduction of a new system.



Table 4-29  
Regression Analysis

Equation 1      Dependent variable .. ALL

Method: Stepwise Criteria    PIN .0500      POUT .1000

Age    Education    Experience    Other-Work    ID    Salary    Travelling  
 Status    Sex    Own-PC-on-work    Travels/year      Teach-hours/week

Variable (s) Entered on Step Number

1..ID

2.. STATUS

Multiple R                    .52319  
 R Square                     .27373  
 Adjusted R Square         .24825  
 Standard Error             6.18543

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	2	821.93607	410.96803
Residual	57	2180.70727	38.25960
F=	10.74157	Signif F =	.0001

----- Variables in the Equation -----

Variable	B	SE B	Beta	T	Sig T
ID	5.017250	1.652703	.349652	3.036	.0036
STATUS	-6.824082	1.690814	-.464851	-4.036	.0002
(constant)	27.628523	1.517701		18.204	.0000

----- Variables not in the Equation -----

Variable	Beta In	Partial	Min Toler	T	Sig T
Age	.115263	.111166	.659784	.837	.4061
Education	-.143558	-.156199	.855924	-1.183	.2416
Experience	-.147238	-.167513	.903031	-1.272	.2088
Other-Work	.146959	.165174	.884601	1.253	.2153
Salary	.015123	.016901	.902974	.126	.8998
Travelling	.089559	.105007	.959223	.790	.4328
Own-PC-on-work	.029559	.034008	.924196	.255	.7999
Sex	.022205	.023906	.814335	.179	.8586
Travels/year	-.227667	-.251684	.862215	-1.946	.0567
Teach-hours/week	.068586	-.072205	.804953	-.542	.5901

In taking ALL the measurements together as a function of explanatory variables age, Education , Experience , Other-Work, ID , Salary , Travelling , Status , Sex , Own-PC-on-Work , Travels/year , and Teach-hours/week the researcher found that they are determined by two variables only , ID and Status.

The variable ID nowadays is very important when trying to measure all the variables together , because the matter of teaching in private or public universities affect greatly the instructor. During the study , the instructors of the public sector had problems with the government, and they had to refer to strikes,which were initiated before ending the study to resolve their problems .Therefore, it stands to reason that instructors of the public sector at the time of the study were very much aware about their status and their university status, and they strongly asked for immediate solutions and better preparation for the university including the introduction of computer system.It is worth mentioning the trials of the government to introduce computers to some faculties and to try to unify the university which could lead to a better use of the available technology.

As for STATUS, it stands to reason that single instructors are more interested and willing to introduce computers.

This reason comes from the fact that a single instructor in general has two advantages over the married instructor in this area :

First , he/she has more time to spend with his/her students and to know their problems, and consequently to have more concern about them, and this difference,which is spare time could also be spent on training and learning the new methods of teaching in case of a computer introduction .

Second , he/she has less responsibilities and failing eventhough it affects him/her and as a doctor, he/she would be very careful about it.It does not have the same impact that it has on a married instructor. The married instructor , in addition to the fear from failing as a doctor teacher , has a fear of not being able to achieve his/her responsibilities properly towards his/her family in both moral and financial terms.

Therefore, a single instructor has less responsibilities and more time to follow recent breakthroughs, and therefore more interest in knowing about them.So he would be more interested in learning about computers.

These findings will be used in the following chapter to conclude and draw some recommendations.

## CHAPTER V

### CONCLUDING REMARKS AND RECOMMENDATIONS

#### Conclusions and recommendations

Lebanon is poor concerning its natural resources, and consequently its industry ranges from small to medium. It can not survive depending on industry, and this is a fact that the Lebanese comprehended since the Phoenicians. Therefore, they turned to the fields of trade and services.

These two fields demand special skills; otherwise, it would be impossible to conduct them properly. Three of the most important skills are as follows :

a- Language :The Lebanese should be able to communicate with others in order to conduct their businesses.

b- Cultural Knowledge :The Lebanese should have a minimum knowledge concerning others' cultural background in order to know how to deal with them.

c- Communication : The subject dealt with in previous chapters falls into this part, and, therefore, will be explained in the next paragraph.

Communication nowadays is one major key in the fields of trade and services.

Whithin this field lies the faxes , telephones , cellulars , satellites ,... , and computers.

Because it is very important to be acquainted with computers, the study tried to reveal the opinions and influences on those who are considered to be the essential part in the computer education , namely instructors. Moreover ,the study was on the high level instructors or doctors teaching at universities .

This sector was chosen because it represents the last stage where a computer knowledge ,in any form, could be transferred to students during their educational phase.

The objective of the study was to observe what feedbacks instructors in this sector show and what the main variables that affect these feedbacks are .

This study also used four measurements previously explained in chapter III, and they were Concern , Willingness , Knowledge about Computers and Other Alternatives.

As for the results, it was shown by the relations between variables that Doctors holding Ph.d degrees do not necessarily hold a positive attitude towards computer introduction, and they have other alternatives while doctors who teach in private universities do not hold better alternatives than computer introduction.

To the surprise of the researcher WILLINGNESS was the measurement that had the most significant relationship with other variables. It was shown by statistical measurements in chapter IV that the younger the instructor is, the more willing he/she is to introduce computers as a teaching method. It also shows that Ph.d holders are not necessarily willing to introduce computers. These statistical measurements also showed that the less experienced the instructor is, the more willing he/she is to introduce computers while doctors who own a computer at work whether in the university or outside do not necessarily have the will to such an introduction.

The study also showed that instructors in private universities are not more willing to introduce computers, and higher salaries do not implement more willingness to computer introduction.

This study also revealed that doctors working in other institutes beside their jobs at the university have more the will to introduce computers as a teaching method.

As for the concern towards students' attitudes from the introduction of computers in universities, the study showed that doctors teaching in private universities do not have more concern about students, and actually those doctors working other institutes are less concerned in students' attitudes towards the introduction of computers at universities as a teaching method.

As for the regression analysis , it was performed to identify the factors that are most likely to be associated with the measurements.

The first related the concern toward students' attitudes about the introduction of computers in the university as a teaching method to the number of teaching hours of the instructor at the university. The second related Knowledge about computers to the status of the instructor being single , divorced , or married.

The third one related the willingness of the instructor to introduce computers as a teaching method to three different variables . These three variables were the number of years of experience of the instructor , the status of the instructor whether he/she is married or single , and whether the instructor has a second job beside his/her job at the university .

The fourth one related all the measurements to two different variables . These two variables were ID and STATUS .

In order to encourage the computer introduction to universities as a teaching method , it is highly recommended to start with a strong specific training programs for the instructors . They should be properly trained in two different sections .

First, they should be properly trained on how to use computers as a communication means and they should be aware of the possibilities of the use of computers . This means that they should be aware of the possibilities where the computer can help in their organization,schedule programming,course preparation, lecture presentation ,etc.



Second, they should be properly trained on the specific educational package(s) that each will use in his/her courses and how it relates to the theory introduced in the classroom.

Also, it is recommended that this training takes place at the university in both group and individual sessions. However, more importance and preference should be given to individual sessions, and the group training is for sharing information rather than training on new softwares.

It is recommended also to encourage instructors to own computers at home, for this will help them to be more acquainted with the computer and to try to solve their problems without any assistance and then refer to the trainer in hard cases.

It is also recommended to initiate seminars for instructors where new softwares could be introduced in order to be updated to all innovations that could take place in the world.

### **Limitations of the study**

Throughout the study conservatism was maintained so as the results maintain to be reliable and unbiased . Despite these efforts , the study was not out of some limitations.

1-The study does not , in fact, include instructors from all the faculties and the univesities that exist in Lebanon .

2- The questionnaire could not be answered by all the instructors in its original English form (Appendix A),Therefore, an Arabic version was prepared (Appendix B) .

3- The questionnaire had a question which many of the instructors hesitated to answer . This question was about the salary of the instructor.

4- The political situation affected greatly the instructors teaching in public universities .

## **APPENDICES**

**Appendix A**

**A  
SAMPLE OF  
THE QUESTIONNAIRE  
IN ENGLISH**

## Appendix A : Questionnaire in English

### QUESTIONNAIRE

My name is Hassan Nasser. I am a graduate student at Beirut University College ( BUC ),Business Studies Division . I am conducting a research on the effect of microcomputers on teaching methods at the University level in Lebanon. Your answers will be completely anonymous and confidential. The responses will be used for statistical purposes . Your cooperation is highly appreciated , and thank you in advance.

1. Age ?

- 25 to 39
- 39 and above

2. Gender ?

- Male
- Female

3. Social status ?

- Single
- Married
- Divorced

4. Level of education attained?

- Ph.D
- DA
- Ed.D
- 3eme cycle
- Others ; (please specify) \_\_\_\_\_

5. Origin of your degree?

- United States.
- France.
- United Kingdom.
- Russia(Soviet Union).
- Others ; (please specify)\_\_\_\_\_

6. State your rank:

- Professor
- Associate Professor
- Assistant Professor
- Instructor
- Other ; (please specify)

7. State your years of experience:

- Less than three
- 3 under 6
- 6 under 10
- 10 and above

8. How many hours do you teach per week?

- Less than 5
- 5 under 10
- 10 under 15
- 15 under 20
- 20 and above

9. do you work in any other institution beside your job at the university ?

- Yes
- No

10. Do you travel abroad?

- Yes
- No

11. Your salary per month ranges from:

- Less than \$300
- \$300 under \$500
- \$500 under \$1000
- \$1000 and above

12. Do you have a computer at work?

- Yes
- No

13. Do you have a computer at home?

- Yes
- No

**PLEASE CIRCLE THE NUMBER THAT MOSTLY FIYS YOUR ATTITUDE**

0	1	2	3	4
Irrelevant	Not true of me now	Somewhat true of me now	Very true of me now	

14. I am concerned about students' attitudes towards computer systems.      0 1 2 3 4

15. I now Know of some other approaches that might work better.      0 1 2 3 4

16. I don't even know what a computer system is.      0 1 2 3 4

17.I am concerned about not having enough time to organize myself each day.      0 1 2 3 4

18. I would like to help other faculty members in their use of the computer systems.      0 1 2 3 4

19. I have very limited knowledge about computers.      0 1 2 3 4

20. I would like to know the effect of reorganization on my personal status.      0 1 2 3 4

21. I am concerned about conflict between my interests and responsibilities.      0 1 2 3 4

22. I am concerned about revising my use of computers.      0 1 2 3 4

23. I would like to develop working relationships with both our faculty and outside faculty using computer systems.      0 1 2 3 4



24. I am concerned about how computers affect students. 0 1 2 3 4
25. I am concerned about computers. 0 1 2 3 4
26. I would like to know who will make the decisions in the new system. 0 1 2 3 4
27. I would like to discuss the possibility of using computer systems. 0 1 2 3 4
28. I would like to know what resources are available if we decide to adopt computers. 0 1 2 3 4
29. I am concerned about my inability to manage all computer requires. 0 1 2 3 4
30. I would like know how my teaching or administration is supposed to change. 0 1 2 3 4
31. I would like to familiarize other departments and persons with the progress of computers. 0 1 2 3 4

**Appendix B**

**A  
SAMPLE  
QUESTIONNAIRE  
IN ARABIC**

## Appendix B : Questionnaire in Aabic

### QUESTIONNAIRE

My name is Hassan Nasser. I am a graduate student at Beirut University College ( BUC ),Business Studies Division . I am conducting a research on the effect of microcomputers on teaching methods at the University level in Lebanon. Your answers will be completely anonymous and confidential. The responses will be used for statistical purposes . Your cooperation is highly appreciated , and thank you in advance.

١-السن ؟

٣٩ - ٢٥ ----

٣٩ - وما فوق ----

٢-الجنس ؟

نكر ----

انثى ----

٣-الوضع العائلي ؟

اعزب ----

متأهل ----

مطلق ----

٤-مرحلة العلم التي وصلت اليها ؟

Ph.D----

DA----

Ed.D----

3eme cycle----

----- مختلف (الرجاء التحديد)

٥- من اين حصلت على شهادتك ؟

----- الولايات المتحدة

----- فرنسا

----- بريطانيا

----- روسيا

----- مختلف (الرجاء التحديد) -----

٦- ما هي رتبته ؟

Professor-----

Associate professor-----

Assistant professor-----

Instructor-----

Other مختلف (الرجاء التحديد) -----

٧- عدد سنين الخبرة ؟

----- اقل من ثلاث سنوات

----- ثلاث اقل من ستة

----- ستة اقل من عشرة

----- عشرة و ما فوق

٨- كم ساعة تعلم في الاسبوع ؟

----- اقل من خمس

----- ٥ اقل من ١٠

----- ١٠ اقل من ١٥

----- ١٥ اقل من ٢٠

----- ٢٠ وما فوق

٩- هل تعمل في مكان آخر غير الجامعة ؟

----- نعم

----- كلا

١٠- هل تسافر ؟

نعم ----

كلا ----

١١- ما هو راتبك الشهري؟

اقل من \$٣٠٠ ----

٣٠٠ اقل من \$٥٠٠ ----

٥٠٠ اقل من \$١٠٠٠ ----

١٠٠٠ وما فوق ----

١٢- هل تملك كمبيوتر في مكان عملك؟

نعم ----

كلا ----

١٣- هل تملك كمبيوتر في البيت؟

نعم ----

كلا ----

ارجو وضع دائرة حول الرقم المناسب

٤                      ٣                      ٢                      ١                      ٠  
صحيح جدا                      غير صحيح ابدا

- ٤   ٣   ٢   ١   ٠                      ١٤- انا مهتم لمعرفة ردة فعل الطلاب نحو انظمة الكمبيوتر
- ٤   ٣   ٢   ١   ٠                      ١٥- اعرف الان طرق افضل من هذه الطريقة(ادخال نظام الكمبيوتر)
- ٤   ٣   ٢   ١   ٠                      ١٦- لا اعرف ما هو نظام الكمبيوتر
- ٤   ٣   ٢   ١   ٠                      ١٧- انا مهتم لجهة عدم وجود الوقت الكافي لانظم نفسي
- ٤   ٣   ٢   ١   ٠                      ١٨- اود مساعدة الكليات الاخرى في عملهم على الكمبيوتر
- ٤   ٣   ٢   ١   ٠                      ١٩- عندي خبرة محدودة جدا في العمل على الكمبيوتر
- ٤   ٣   ٢   ١   ٠                      ٢٠- اود معرفة تأثير تغيير النظام على وضعي المهني
- ٤   ٣   ٢   ١   ٠                      ٢١- انا مهتم للتضارب بين مصالحتي و مسؤولياتي
- ٤   ٣   ٢   ١   ٠                      ٢٢- اود مراجعة فكرة استعمالتي للكمبيوتر
- ٤   ٣   ٢   ١   ٠                      ٢٣- اود تنمية علاقات عمل مع كليتي و كليات اخرى باستعمال نظام الكمبيوتر
- ٤   ٣   ٢   ١   ٠                      ٢٤- انا مهتم لاعرف تأثير الكمبيوتر على التلاميذ
- ٤   ٣   ٢   ١   ٠                      ٢٥- انا مهتم للكمبيوتر
- ٤   ٣   ٢   ١   ٠                      ٢٦- اود معرفة من الذي سيكون في موقع اتخاذ القرار بالنظام الجديد
- ٤   ٣   ٢   ١   ٠                      ٢٧- اود مناقشة احتمال استعمالتي للكمبيوتر

- ٢٨- اود معرفة ما هي المصادر الموجودة في حال قررنا تبني الكمبيوتر  
٠ ١ ٢ ٣ ٤
- ٢٩- انا مهتم حول عدم تمكني من ادارة كل ما يتطلبه الكمبيوتر  
٠ ١ ٢ ٣ ٤
- ٣٠- اود معرفة التغيير الذي سيطرأ على طرق التعليم و الادارة  
٠ ١ ٢ ٣ ٤
- ٣١- اود مساعدة الكليات والاشخاص الآخرين على معرفة التقدم الحاصل في الكمبيوتر  
٠ ١ ٢ ٣ ٤

**Appendix C**

**STAGES OF CONCERN  
ABOUT THE INNOVATION**



## Appendix c : Stages of Concern About the Innovation

- 0 AWARENESS** : Little concern about or involvement with the innovation indicated .
- 1 INFORMATIONAL** : A general awareness of the innovation and interest in learning more detail about it is indicated. The person seems to be unworried himself/herself in relation to the innovation . She/he is interested in substantive aspects of the innovation in a selfless manner such as general characteristics, effects ,and requirements of use .
- 2 PERSONAL** : Individual is uncertain about the demands of the innovation , his/her inadequacy to meet those demands ,and his/her role with the innovation . This includes analysis of his/her role in relation to the reward structure of the organization , decision-making and consideration of potential conflicts with existing structures or personal commitment. Financial or Status implications of the program for self and colleagues may also be reflected.
- 3 MANAGEMENT** : Attention is focused on the processes and tasks of using the innovation and the best use of information and resources. Issues related to efficiency , organizing , managing , scheduling , and time demands are atmost .
- 4 CONSEQUENCE** : Attention focuses on impact of the innovation of students in his/her immediat sphere of influence . The focus is on relevance of the innovation of students , evaluation of student outcomes , including performance and competencies , and changes needed to increase student outcomes .
- 5 COLLABORATION** : The focus is on coordination and cooperation with others regarding use of the innovation .
- 6 REFOCUSING** : The focus is on exploration of more universal benefits from the innovation , including the possibility of major changes or replacement with a more powerful alternative. Individual has definite ideas about alternatives to the proposed or existing form of the innovation.

**Appendix D**

**LEVELS OF  
USE OF THE  
INNOVATION**

## Appendix D : Levels of Use of the Innovation

- 0     **NONUSE**                    Stage in which the user has little or no knowledge of the innovation , no involvement with the innovation ,and is doing nothing toward becoming involved .
- I     **ORIENTATION**                Stage in wich the user has recently acquired or is is acquiring information about the innovation and/or has recently explored its value orientation and its demands upon users and user system .
- II     **PREPARATION :**            State in which the user is preparing for first use of the innovation .
- III    **MECHANICAL USE:** State in which the user focuses most effort on the short-term ,day-to-day use of the innovation with little time for reflection . Changes in use are made more to meet user needs than client needs.The user is primarely engaged in a stepwise attempt to master the tasks required to use the innovation , often resulting in disjointed and superficial use
- IVA   **ROUTINE**                    Use of the innovation is stabilized . Few , if any changes are being made in ongoing use . Little preparation or thought is being given to improving innovation use or its consequences .
- IVB   **REFINEMENT**                State in which the user varies the use of the innovation ti increase the impact on clients within the immediat sphere of influence . variations are based on knowledge of both short and long-term consequences for clients.

**V INTEGRATION** State in which the user is combining own efforts to use the innovation with related activities of colleagues to achieve a collective impact on clients within their common sphere of influence.

**VI RENEWAL** State in which the user re-evaluates the quality of use of the innovation , seeks major modifications of or alternatives to present innovation to achieve increased impact on clients , examines new developments in the field , and explores new goals for self and the system .

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" The more you know , the more you  
know how much more there is to  
know "