Teacher Attitudes Toward Computer Literacy.

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TEACHER ATTITUDES
TOWARD COMPUTER LITERACY

A Dissertation

Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of
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in

The Interdepartmental Program in Education

by
Leroy George Stenzel, Jr.
B. S. University of Houston, 1969
M. S. Kansas State University, 1976
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ABSTRACT

A survey on attitudes and perceptions toward computer technology was conducted among 464 teachers in five randomly chosen parishes in the State of Louisiana. In each parish one elementary school, one junior high or middle school, and one high school were randomly chosen. The sample included every teacher in each of the chosen schools. A total of 369 (79.5 percent) surveys were returned. The purposes of the study were to delineate, analyze, and document the reasons that teachers may avoid using computer technology. Lack of opportunity, lack of assistance, and lack of equipment and materials appeared to be the primary obstacles to teacher use of computers in schools.

Findings included the following: (1) Teachers had generally positive attitudes toward computers. (2) A positive relationship appeared to exist between the educational degree possessed by a teacher and the perceptions the teacher had of computers. (3) Age, gender, teaching level, and teaching field did not appear to be significant factors in the predisposition of teachers to learn about computers. (4) A significant relationship appeared to exist between perceptions of negative factors surrounding computers and perceptions of the usefulness of computers. (5) Sixty-three percent of the teachers wanted to learn about computers at their own paces, and over
94 percent wanted to learn using the equipment and materials they will use in their jobs. In-school assistance was not available for 87.7 percent of the teachers in the sample.

The following recommendations were made: (1) That individualized computer training programs be made available to all teachers as part of their inservice training. (2) That computer equipment be made available to individual teachers engaged in the training programs. (3) That computer expertise be developed by teachers at various levels. (4) That software packages be developed to allow teachers to utilize classroom computer equipment while building computer skills. (5) That research be conducted to determine needs of individual teachers regarding content and emphasis of programs and depth of computer expertise.
Chapter 1

A revolution is upon us, and the outcome will be as profound as if it had been brought about by violent means. The primary force in the revolution is technology, computer technology. The effect of computers on our lives will far surpass that of television, radio, or photography. It will have the impact of movable type (Byrne, 1981 and Shane, 1982).

While computing devices have been with us for centuries, the technology of electronic digital computing first appeared in 1937 (Doerr, 1979). Efforts during World War II brought about improvements that made the devices practical, and in the early 1950's the UNIVAC was introduced as the first commercial computer. The technology was expensive, cumbersome, and complex requiring the constant attention of engineers, scientists, programmers, and mathematicians (Datapro, 1981). Persons involved with computers were invested with arcane knowledge that gave them a status equivalent to that of medieval alchemists. Computers and people who used them were mysterious and awe-inspiring. Novels and motion pictures of the 1950's and 1960's portrayed computers as sinister entities who had supernatural intelligence and abilities (Buckwalter, 1978).
Along with the developments in computing, the development of the transistor allowed electronic devices to be miniaturized, require less power, and become more reliable. To make computers available to practitioners in technical disciplines, user oriented languages were developed for programming. By the end of the 1960's, almost every discipline used computers to some extent, but computers were still expensive and large, requiring skilled programmers and operators. There were experimental applications of computers in education, but computers were still far from being common school assets.

In 1971, the PDP-11 minicomputer was introduced. It was a stand-alone system that emulated most of the features of the large systems but was much smaller and less expensive. The PDP-11 and other minicomputers made the technology of computing available for more operations in smaller settings with less rigorously controlled environments. While the minicomputer was a step in the right direction, the technology was still not available in a practical sense to educators. There were some administrative uses and some experimental instructional efforts, but the systems were still prohibitively expensive and difficult to use in instructional settings.
Miniaturization continued, and in 1975 the first commercially available microcomputers were introduced (Datapro, 1981). The manufacturing processes allowed great numbers of the devices to be made with accompanying reductions in cost per unit. By 1980, the industry had brought about reductions in prices and increases in numbers of microcomputers and peripheral devices to allow practical use of microcomputers in the classroom (Lopez, 1981).

The state of the art in computing is accelerating with computers and microcomputers becoming part of our normal existence. In some places, normal banking activities require customers to use a simple form of computer terminal. Children are growing up with microcomputer games and other devices. Microcomputer systems can now be purchased for less than the cost of a sound film projector, but microcomputers are found in only 25 percent of Louisiana school classrooms (Lawrence, 1982). Packaged instructional and administrative programs are readily available at nominal costs. Howard B. Hitchens (1981) predicted that by 1987 half of all American homes will be connected to some sort of remote database and will have an in-house computer to do the chores of home management. The technology is available for a powerful teaching resource, but the resource has barely been tapped.
STATEMENT OF THE PROBLEM

The primary problem in use of computers has ceased to be in the machines themselves. Stakenas and Kaufman (1982) stated that the challenges in technology lie not with equipment but with people. The primary limitations appear to be with the people who would use computers. Hirshberg (1981) stated that the problems now lie with developing the program packages.

Anderson, Klassen, and Johnson (1981), in discussing computer literacy, recommended that skills and knowledge be developed in the average person to allow him to function with computers in society. They also suggested that, while it is the responsibility of schools and teachers to develop computer literacy in their students, such literacy is not being sufficiently developed. Many teachers utilize computers and microcomputers in teaching, but they are in the minority (Martellaro, 1980). Most teachers do not seriously consider use of computers as a part of their normal activities. This study attempted to delineate, analyze, and document the reasons that teachers may avoid using computer technology and then made recommendations to be followed in developing computer literacy training programs for teachers.
SIGNIFICANCE

Accurate information on teacher characteristics, aptitudes, limitations, values, and perceptions with regard to computers will make possible the design and targeting of effective inservice training programs. This research will provide such information for computer literacy programs for teachers.

LIMITATIONS

The percentage of returns of the survey was less than one-hundred percent. The percentages of returns were as follows:

- Elementary schools - 71.4%
- Junior high schools - 92.6%
- Senior high schools - 75.5%
- Total return from all - 79.5%

The conclusions drawn from the study may be generalized only to populations similar to those found in the parishes in the sample.

DELIMITATIONS

The study was delimited to teachers in public elementary, junior high, middle, and high schools in the State of Louisiana. The districts and schools were randomly selected.
ASSUMPTIONS

The following assumptions were made in the study.

1. Responses from the subjects were honest and accurate within limits of their experience and perception.

2. No instrument existed which would satisfactorily measure the attitudes and responses in this study. The survey instrument constructed for the study attempted to achieve a consensus to serve the purpose.

DEFINITION OF TERMS

For this study, the following definitions will be used:

Computer - the collective term used for mainframe, mini, and microcomputers.

Microcomputer - a small, self-contained, desk-top computer system in a stand-alone configuration. Microcomputers are often called personal computers although the computer industry defines the personal computer as a still smaller system. Microcomputers are specialized applications of microprocessors.

Minicomputer - a somewhat larger, more powerful, and more complicated system than a microcomputer. Minicomputers can usually exist in normal office environments but do require special programming skills.
Mainframe Computer - the largest form of computing system. Mainframe computers require system operators and special housing, have complex operating procedures, and are costly to purchase and maintain.

Hardware - the computer and machinery and other devices used with the computer.

Software - the programming and data that tell a computer what to do. The term will also refer to printed documentation and other media that contain operator instructions, programming, and data.

Teacher - a person who holds a teaching position in a public school or one who holds a teaching certificate but holds a position as a counselor or librarian. School administrators are excluded.

Inservice Teacher Education - postgraduate academic work for practicing teachers, administrators, and trainers. The work is related to the learner's field and may be undertaken voluntarily or as a result of mandatory programs.

HYPOTHESES

The following is a list of hypotheses to be tested during the study.

1. Significant relationships will be found between education levels of teachers and the responses to the opinion questions on the survey instrument.
2. Significant relationships will be found between teacher age and the responses to the opinion questions on the survey instrument.

3. Significant relationships will be found between teacher gender and the responses to the opinion questions on the survey instrument.

4. Significant relationships will be found between the levels taught by teachers and their responses to the opinion questions on the survey instrument.

5. Significant relationships will be found between academic majors and minors of teachers and their responses to the opinion questions on the survey instrument.

6. Significant relationships will be found between frequency of use of non-traditional media by teachers and their responses to the opinion questions on the survey instrument.

7. Significant relationships will be found between previous use of computers and microcomputers by teachers and their responses to the opinion questions on the survey instrument.

8. Significant relationships will be found between teacher perceptions of the threats and limitations of microcomputers and teacher receptiveness to microcomputers.
Chapter 2
RELATED LITERATURE

The literature was examined in the following areas:
1. Developments in Use of Computers.
2. Developments in Microcomputers.
3. Uses of Microcomputers in Education.
4. Teacher Reactions to Microcomputers.
6. Concerns from Adult Education.
7. Programs in Computer Literacy.

DEVELOPMENTS IN USE OF COMPUTERS

For decades, educators have seen potential uses for computers in facilitating instruction. Activities of the 1960's employed Skinnerian approaches in computer-assisted instruction, but the systems utilized large, centralized computer systems which were expensive and usually limited to research activities (Gleason, 1981).

A survivor is the PLATO Project of Control Data Corporation. PLATO (Programmed Logic for Automated Teaching Operations) is an effective and highly interactive instructional system designed primarily for adults and used in all parts of the country (Brown, 1981; Clement, 1981; Hofstetter, 1980; Davis, 1981).
In PLATO, a computer terminal is furnished to each learner. The terminal is connected by telephone lines to a large central computer which holds and administers the instructional programming and interacts with each learner. The great capacity of the central computer systems allows many programs to be run simultaneously for hundreds of learners (Jenkins and Dankert, 1981). Although the systems have capacity for hundreds of users, the response time grows longer as numbers of users increase, and eventually the long response times lead to frustration on the part of the learners (Gull, 1980).

Several factors contribute to the high costs of centralized systems. The most expensive items are the main computer and development of the instructional programming. The terminals and leasing of telephone lines to connect to the system are factors. Gleason (1980) reported that to establish a single terminal on PLATO would cost more than $6000, several times the cost of a stand-alone microcomputer system. PLATO and other centralized systems have subscription costs in addition to the initial costs (Gleason, 1981; Jenkins and Dankert, 1981).

Bryant, Bryant, Penn, and Sweetland (1980) described the use of PLATO with other media in Saint Paul, Minnesota to conduct a program in Adult Basic Education.
The program employed computer-based career guidance and job-seeking packages. Denenberg (1980) described "An Alternative Curriculum for Computer Literacy Development (ACCOLADE)," a computer literacy program used with PLATO.

The overall impact of PLATO has been highly favorable. Most users have had satisfactory results and have been eager to continue using the systems (Brown, 1981; Clement, 1981).

Lemos (1981) related an example of one department who turned down a free mainframe computer system after analyzing the long range costs. Trippett (1981) gave an example of several neighboring communities that formed a group to purchase and share a mainframe system for their schools. Joos (1980) reported a Michigan school system which utilized a mainframe system for instructional grouping of students. According to Bork (1980a), the time-sharing systems will continue to be used; however, as the stand-alone systems using more sophisticated microprocessor components become available, they will become the dominant delivery systems. Kniefel and Just (1979) expected mainframe computers and microcomputers to serve in complementary roles.

Luehrmann (1980) listed five priorities for research and development in the introduction of computer technology to education.
1. Computer literacy programs.
2. Teacher training programs.
3. Curriculum development centers.
5. Development of interactive video technology.

DEVELOPMENTS IN MICROCOMPUTERS

Developments in miniaturization in electronics in the late 1960's provided the technology for the minicomputers which were introduced in the early 1970's (Dataproc, 1981). The minicomputers were smaller, had less computing power and were less expensive than the large computers. Although some school systems were able to purchase minicomputers, the cost was still prohibitive for most school systems. Minicomputers still required programming and management by computing specialists (Gull, 1980).

The development of the microprocessor, a computer on a "chip", made microcomputers possible in the middle 1970's. The microprocessor uses large-scale integration of electronic circuitry to place thousands of components on a single device about the size of a thumbnail. The microcomputer is a special application of the microprocessor (Dataproc, 1981; Frederick, 1980; Doerr, 1979).

The first microcomputer or personal computer was the Altair 8800 introduced by MITS, Incorporated in 1975. The 8800 was a minimal computer which required programming
by the setting of switches (Datapro, 1981). The state of
the art advanced rapidly and by 1976, several microcomputer
systems were on the market. The new systems used a
high-level user-oriented language called BASIC (Beginners
All-purpose Symbolic Instruction Code) for programming
(Datapro, 1981; Milner, 1980). In 1977, the Tandy Radio
Shack TRS-80 series, the PET-Commodore series, and a number
of smaller entries were introduced to the consumer market.
The hardware was satisfactory for use in education and
business environments (Datapro, 1981). In 1981, two large
companies introduced their own lines of personal computers
to the consumer market: Xerox Corporation with its Model
820 and IBM with its model called "Personal Computer"

In 1979, manufacturers in the United States
produced and sold over 280,000 personal computers. Datapro
(1981) estimated that by the end of 1984, 2,300,000
personal computers will be in homes, schools, and offices.
Correa (1979) predicted that 3,800,000 microcomputers will
be installed by 1985 and that 7,500,000 will be installed
by 1990. In projecting inflation and declining costs of
microcomputer systems, Papert (1981) predicted a
microcomputer for each child as a practical goal by the
turn of the century. Rice and Mosow (1981) reported that
12 percent of all microcomputer applications in the U. S.
are in Education.
Interactive video is a new synergistic medium that combines video and microcomputer technologies. The implications for education are profound and the hardware exists, but research is needed on production techniques for efficient employment (Thomas, 1981). McIsaac (1979) computed the data capacity of a single thirty-minute videotape disc as nearly 5000, two hundred page books or over 2,800,000,000 characters.

Brandenstein (1981) described microcomputer control of slidetape sequences that will provide presentations similar to interactive video with greater flexibility but at lower cost. McBride (1981) suggested using microcomputers not only to control equipment in multi-image presentations but also to generate the slides for the presentations. He pointed out that because presently available devices for storage of picture information have serious limitations, optical slides will continue to be used for the foreseeable future.

Duckenfield (1982) named six Japanese manufacturers who were invading the computer industry which had been dominated by American manufacturers. The Japanese were providing peripheral devices and components as well as some mainframe systems and appeared to be well-financed and prepared to compete with high-quality systems compatible with existing American systems. Duckenfield stated that a
study by the Hewlett Packard Corporation found the Japanese components to be of higher quality and lower price than equivalent American components.

Polin (1982) named seven major publishing houses who were producing materials for computer-assisted instruction, but he warned that the microcomputer had created a cottage industry that was about to produce a glut of educational software. The equipment manufacturers were also suppliers of educational software, and institutional users often released their own materials that were produced in-house. Bork (1982) expressed concern over the adequacy of existing production systems and called for research not only into content of computer-related instructional materials but also into presentation methods and delivery environments. Sullivan (1981) urged that new environments be designed to support learning with the new technology, because present classrooms were neither appropriate nor efficient.

Bibliographic Retrieval Services (BRS) offered "School Practices Information File" (SPIF), a database that provided among other features access to the National Diffusion Network (NDN) and access to Microcomputer courseware and software listings. The SPIF did not duplicate Educational Resources Information Center (ERIC) but was intended to serve as a supplement for practitioners ("Spotlight on: SPIF", 1982). The NDN served as a source, clearing house, and funding agency for over 200 educational
programs in the country (Neill, 1981). The NDN furnished some assistance with inservice training and evaluation for the programs under its control.

Milner (1980) and Moursund (1979) warned of problems with hardware and software that may make use of computer technology impractical for many applications. Milner stated that equipment using 1975 technology has become obsolescent but that advances in the state of the art dictate that managers plan with obsolescence in mind. Moursund advised that equipment and program limitations exist and that the most severe limitations lie with the people who plan and use the systems. Milner and Moursund agreed that goals must be clearly defined before systems are acquired and that full integration of the systems into the environment will require considerable time and effort. Svenson (1981) outlined a plan of evaluation for determining the value of adopting computer-based instruction in an organization.

Evans (1981) warned of "hardware infatuation", losing sight of objectives and becoming preoccupied with new hardware. New users must adhere carefully to goals.

In a Delphi study using 56 media experts, Dayton (1981) found the following consensus concerning computers in education during the next two decades.
1. Computers will be a normal mode of instruction.
2. Interactive and branching materials will grow.
3. Games and simulations will grow in use.
4. Use of interactive video will become common.
5. Computers do not constitute threats to teachers.
6. Media will be centrally stored and transmitted in electronic form to users as needed.
7. The use of computers in production of educational materials will grow and will include use in graphics and animation, but production personnel are not likely to be displaced.

USES OF MICROCOMPUTERS IN EDUCATION

The literature reflects three main roles or categories of applications for microcomputers in education.
1. Administrative Applications.

Watts (1981) described three distinct classes of use: school organization, curriculum development, and instruction. He lists twelve functions for computers.

1. Administrative Applications. Computers can be used for accounting, payroll, and employee records and other business related activities of the school. Student attendance, grades, and other records can also be maintained by computer. Strang (1980) reported using a microcomputer with 48 Kilobytes of memory to maintain
course files for up to 500 students. With peripheral floppy disk storage devices, Strang's system can store the records of up to 3200 students.

2. Curriculum Planning Applications. Small databases can be established to provide resource units for teachers to use in planning lessons. Packaged programs are available for producing lessons by microcomputers. Gagne', Wager, and Rojas (1981) suggested planning procedures that should become part of course writing software for computer-assisted instruction lessons.

3. Professional Development Applications. Courses are available via computer in several areas for teachers. The courses are not limited to computer science, and the teachers do not have to be programmers to use the course materials. Bork and Franklin (1979) and Stahl (1979) suggested interfacing microcomputers with time-sharing systems to allow maintenance of up-to-date and efficient instructional programs.

4. Library Applications. Library applications include cataloging and overall library management. Frederick (1980) suggested that most systems can also be used as communications terminals to allow access to online information systems such as Lockheed Corporation's Dialog.

5. Research Applications. Statistical packages are available for most microcomputer systems and do not require
programming expertise by the user. Teachers should be able to conduct studies to better manage their classes (Watts, 1981).


7. Testing Applications. Several test writing packages are available to allow teachers to compose examinations and then evaluate the results (Watts, 1981).

8. Instructional Aid Applications. Prepared instructional packages can be purchased for many subjects, or teachers can write their own instructional programs if they have programming expertise. Extensive computer training is no longer required. In this application, the computer is only an aid (Milner, 1980).

9. Instructional Management Applications. By keeping student records and measuring student responses at desired points, the computer can alert the teacher to likely problems or prescribe alternative work for students according to the programming or instructions left by the teacher (Perry and Wright, 1981).

10. Computer-Assisted Learning Applications. In this application, the computer takes the central role in directing the learning activity. The teacher is free to give attention to other students but is still available to guide learning at the critical points. Coulson (1970) suggested the computer as an object of study to teach problem-solving.
11. Computer Literacy Applications. Computer literacy programs can be conducted for faculty, staff, and students (Gleason, 1981).


Roecks (1981) added "Institutional Coordination" to Watts' list. Roecks suggested that computers be used as communication devices for information sharing and word processing.

Pogrow (1980) promoted the "LEAP Model (Logistically Efficient Approach)" that was to allow state education departments to assist local school systems in implementing new programs through microcomputer technology. Local school systems desiring to participate would purchase microcomputers, and the state organization would provide software and inservice training. The benefit was that the school system enjoyed conceptual and physical implementation of the technology at the same time.
Perry and Wright (1981) reported the successful use of the Houghton Mifflin/ TSC "Dolphin" System in a pilot program in West Carroll Parish in Louisiana. The Dolphin system provided Computer-Managed Instruction (CMI) in an integrated process using teachers in the classroom. Students worked at their own paces on the terminals, and the teachers were able to monitor student progress and difficulties on a central terminal and respond immediately to give assistance when necessary. The Dolphin system normally used all licensed programming and required no programming expertise on the part of the teacher. In the experiment, the test group gained four Normal Curve Equivalencies more than the control group. Caldwell (1980) and Stevens (1981) expressed concerns about the quantity and adequacy of software in CMI systems. Most products that pass for tutorial programs consist only of drill and practice lessons which display questions and require specific student responses.

TEACHER REACTIONS TO MICROCOMPUTERS

Suppes (1980) stated that teacher roles are changed only slightly in computer environments. Wood and Wylie (1977) expressed confidence in computer technology's ability to actually humanize education by relieving teachers from preparing and grading large numbers of routine drill and practice exercises and tedious maintenance of student records. While teachers are freed
to tutor, counsel, and carry out other important duties, many teachers have not accepted the new tools.

Martellaro (1980) stated that teachers generally have one of the following attitudes toward computers.

1. That computers should be kept out of schools except for "very controlled situations." Computers will dehumanize education.

2. That computers can be of great benefit to education but they are afraid of computers for various reasons and are not sure what to do or where to start. Most teachers take this view.

3. That computers are "the new wave of the future" and they want computers right now.

In her 1979 survey, Stevens (1980) sought to discover information on which to base the design of preservice and in-service programs on computers in education. The survey was to question 1206 randomly selected K-12 teachers and all staff members and student teachers at University of Nebraska-Lincoln's College of Education. Only 52 percent (657) of the K-12 teachers, 59 percent (227) of the student teachers, and 62 percent (79) of the teacher educators responded.

The survey asked questions about student and teacher needs, teacher responsibilities, existing and required teacher competencies, potentials of computers, anxieties and perceived levels of expertise, and perceived availability of hardware and appropriate software for educational use of computers. Questions were also asked to check simple computer literacy within the groups sampled.
Stevens (1980) reported that 90 percent of the educators felt that young people need "to be aware of the role computers play in society," while 70 percent agree that high school students need "to demonstrate understanding of computers." A survey of educators in Minnesota produced similar results (Neill, 1977).

Stevens (1980) found that more than 80 percent of the teachers felt that their training for use of computers was inadequate, and over half expressed the need to learn to use computers. Seventy-three percent of the teacher educators agreed that their training had not been adequate. Sixty-eight percent of the student teachers expressed the need for help, while only 7 percent felt that their expertise was adequate.

Dershimer (1980) identified characteristics of teachers who would use computers in their classrooms and stated that mathematics and science teachers used computers more than any other group. She surveyed teachers about their willingness to use computers and sought to identify the early adopters who would innovate by using microcomputers. Dershimer conducted her study in six schools where the administrators had positive attitudes toward microcomputers. A total of 272 teachers completed questionnaires and the Kirton Adaptation Innovation Inventory. Among the 202 usable returns, Dershimer identified three groups that she designated as "(1) more inclined, (2) less inclined, and (3) not inclined to be
early adopters..." of microcomputers in the classroom. Dershimer found and listed several groups who were willing to use microcomputers and characteristics of likely users but found little about the teacher who will not use computers.

Clement (1981) discredited two myths concerning computers in education. The first myth was that computers are dehumanizing. He stated that learners reported that computers were friendly and would not judge or criticize mistakes. The second myth was that learners have positive attitudes because of the novelty associated with the computer. Clement suggested that sustained activity between learners and computers showed that the novelty of computer systems was not a significant influence.

Isaacson (1981) developed a self-instructional computer training program for 125 K-12 teacher and teacher-trainees. He found that a major consideration was the confidence level of the individual teacher.

Fear of the technology causes a great many teachers to avoid use of computers in the classroom (Diem, 1981; Jay, 1981; MacKinnon, 1980; Gleason, 1981; Barrow, 1981). Dove (1982) stated that teachers feel threatened when they approach computers because of the complicated nature of the technology or because they do not want to be embarrassed by having to learn a computer language in the presence of their students. Fear of job loss, previous bad experiences with computers, and bias against mechanical things are
aversive factors (Zahn, 1981). Clower (1981) suggested that teachers fear their authoritarian loss of control over their classrooms and that students often know more than their teachers about computers.

To allay teacher fears, Rice and Mosow (1981) called for initial workshops and training sessions to show what the technology can do and the establishment of on-going programs to build skills as teacher competencies improve. When the factor of fear is removed from the computer environment, learning can proceed rapidly (Lockard, 1980).

The lack of opportunity for training in the educational uses of microcomputers may be a major factor in teacher avoidance. While technical computer courses are offered at many institutions, few institutions offer courses tailored to the use of computers in education (Dickerson and Pritchard, 1981; Molnar, 1981).

COMPUTER LITERACY

Computer literacy is a term with many definitions. The definitions vary according to the user whose computer literacy is described. Indeed, computer literacy seems to be a multi-tracked continuum with a track for each user's job requiring a describable range of competence and understanding about computers (Wilson, 1981).

Stevens (1981) stated that the definition selected by the educator will determine the ways computers are integrated in the instructional programs. Loop (1982)
wrote that the term can mean "anything from a nodding acquaintance with computer-generated arcade games to proficiency in operation and programming of a computer."

As with other disciplines, the extent of offerings in computer literacy should be determined by the needs of the learner. Ricketts and Seay (1979) described computer literacy as "some blend of knowing how and when to use preexisting programs, of being able to impart programming skill or computer science concepts, and of feeling comfortable with computer hardware."

Since World War II, we have changed from an industrial society into an information society in which persons without access to information and without understanding of computers cannot be considered fully functional members (Horn and Poirot, 1981). Persons who are computer literate are assets as important as any energy source or raw material. Dickerson and Pritchard (1981) saw the cultural and economic gaps in society becoming greater because the "haves" will become computer literate before the "havenots" can develop their literacy. If schools do not satisfy the needs of their students, then some other institution or entity will fill the gap (Goldhammer, 1982). Biemiller (1981) reported a "10-year Program" of the College Board to improve the readiness of high school students for college level academic work. The ability to use computer-related technology is prominent.
Moursund (1979) and Aiken (1979) cited multiple barriers to computer literacy.

1. The availability and distribution of hardware, software, and courseware. Problems in this category are given to solution by effort and allocation of resources.

2. The lack of knowledgeable and supportive teachers and school administrators. Problems in this category are causing the bottleneck.

Wilde (1981) suggested that minimal computer literacy for faculty members must be that they overcome fears of computer technology to the extent that their fears do not prevent their students from approaching computers.

CONCERNS FROM ADULT EDUCATION

If effective computer literacy training programs are to be established for practicing teachers, account must be taken of the anxieties about computers they are likely to bring with them. Establishing effective learning environments for adults differs from teaching children. Rottier (1982) reduced anxiety of the teachers in his computer literacy classes by comparing the computers to movie projectors and getting the teachers to use the computers without fear of mistakes. Pipes (1980) advised newcomers to computing to approach learning about computers in the same way they learned about driving or playing tennis and to expect some frustration that will be easily overcome.
Axford (1969), Johnson (1979), and Simpson (1980) agreed on several characteristics of adult learners.

1. Adults usually approach the learning situation with specific goals in mind.

2. Adults want to control their own learning and set their own pace.

3. Adults come from widely varied backgrounds and have differing learning abilities.

In their Phi Delta Kappa booklet, Bell and Peightel (1976) subscribed to similar principles in planning and establishing learning environments for inservice teacher training.

Broschart (1977) delineated institutional, personal, and social barriers to adult participation in learning experiences. All needs of the adult learner must be considered when constructing the learning situation. Peters (1974) placed emphasis on precise tailoring of the curriculum to meet the needs of each adult participant. Katz (1981) suggested that the teacher be helped to redefine the teaching job so it becomes achievable. Hull and De Sanctis (1979) listed four strategies to be used in teaching adults.

1. Program descriptions and objectives should be clearly stated to allow the potential learner to make appropriate choices.

2. Stimulus materials selected should build on the experience of the learners.
3. Opportunity for practice must be provided.
4. Feedback mechanisms must be provided.

Bedient and Rosenberg (1981) described a four-stage model for designing instruction for adults.

1. Instructor presentation using peer instruction and assistance as appropriate and available.
2. Guided practice sessions using peer instruction and assistance as appropriate and available.
3. Shared experiences in which learners interact to provide formative feedback. The instructor's role in this stage as a facilitator is critical.
4. Evaluate completed project. Since each learner has received formative feedback during the project, most will receive positive evaluations and will probably have a positive self-concept because they have been active throughout process.

Bedient and Rosenberg encouraged teachers of adults to allow learners to undertake projects that the learners find practical in their own endeavors to stimulate interest and effort. The principle that adults usually resist learning that threatens their self-concept dictates that they have a part in planning their own learning processes (Simpson, 1978).

Smith (1982) recommended various forms of incentives to get adults to participate in training programs. He discussed the use of trinkets often used in advertising to promote learning and cites perceived values.

1. The computer is infinitely patient and allows the adult to entirely control his own pace unless the programmer has built time constraints into the system. The computer does not judge performance, and the learner is not as afraid to make mistakes in the process of learning.

2. Computer-assisted adult learning can allow the learner to move directly to the area of interest without having to sit through unnecessary classes.

PROGRAMS IN COMPUTER LITERACY

Teacher training has been established as a critical problem, and Aiken (1981) cited two imperatives in directing efforts.

1. Even when materials and hardware are available, teachers who are to be given responsibility have not been adequately trained. Teachers must be convinced of the appropriateness and importance of computers and then given adequate training to use and build the systems in their schools.

2. After programs are in place, ongoing support is necessary for maintenance and expansion of hardware, software, and personnel.


1. To lead and coordinate the computing efforts of schools within the state.

2. To establish a centralized computing courseware library for the state.

3. To conduct inservice training in computer applications for state teachers and administrators.

4. To coordinate purchases of computer equipment and materials for the schools of the state.
Johnson (1980) proposed the following guidelines for introductory courses in computer literacy.

1. There should be no course prerequisite.
2. Three-fourths of the course should be devoted to nonprogramming materials and one-fourth to elementary programming only if computers are available.

Diem (1981) provided a model for an inservice computer literacy program. The program has five stages and is similar to the model proposed by Bedient and Rosenberg (1981) for adult training.

1. Stage One would include hands-on familiarization with available computer systems to destroy the computer mystique.
2. Stage Two would include more hands-on work with testing and evaluation of materials. One objective of this stage would be to begin making the teachers intelligent consumers of educational software.
3. Stage Three would be an evaluation and possible restructuring of their curriculum where computerization might be likely.
4. Stage Four would be meeting with a programming expert who would assist in the restructuring. The hiring of the programmer will remove the requirement for the teacher to become a programmer while making the services of a professional available to furnish a usable end product.
5. Stage Five would include ongoing staff development and summative evaluation of the new curriculum.

Diem acknowledged the limitations that his model requires willing teachers and significant allocation of resources and freedom of action.

Dwyer (1980) described four strategies to be used in bringing computers into education:
1. The first strategy is to establish instructor sensitivity to the degree to which the learner builds his own model of the environment. Does the learner control the computer or respond to it?

2. The second strategy is that the instructor must encourage and guide the learner and establish mutual trust. The instructor must expect maturation of the learner in the discipline.

3. The third strategy is the establishment of a "rich and joyful environment" in which the learning is to take place. Dwyer issues the caveat that without discipline and purpose, the learner may flounder.

4. The fourth strategy is the establishment of a mentor relationship between the learner and the instructor.

Dwyer used flight instruction as the example to illustrate "dual mode" and "solo mode" of instruction and to illustrate the four strategies. The instructor pilot must be constantly sensitive to how well the student pilot performs tasks and evaluates various situations, because, at some point, the instructor pilot must send the student pilot on his first solo flight. The student pilot’s life will depend on the judgement of the instructor.

Lopez (1981) reported favorable results in conducting inservice computer literacy programs for the faculty of two New Orleans Area schools. The programs were presented to each faculty in five two-hour meetings and a number of laboratory sessions.

1. In the first meeting, the teachers were introduced to the hardware, software, and the Basic language. They had hands-on experience and ran "canned" programs and learned some of the standard practices in dealing with computers.
2. In the second class meeting, problem-solving and program-writing procedures were presented and practiced.

3. In the third class meeting, computer-assisted instruction was introduced and demonstrated.

4. In the fourth meeting, teachers began writing simple drill and practice programs, and tutorials were discussed.

5. In the last meeting, teachers learned to list and read programs written by other people and make cosmetic changes.

Kirchner (1981) described the three-day, fifteen lesson computer literacy program initiated by the State Department of Education in Pennsylvania. The program used computers, videotapes, films, and instructional personnel from several disciplines. The fifteen lessons were divided into three sequences.

1. The first sequence included elementary hands-on work, history of computing, terminology, practices, and comparison of several computer languages.

2. The second sequence included elementary problem-solving skills and programming procedures, work in Basic, and selection and work on projects.

3. The last sequence looked at impacts and capabilities of computers, school applications, work on projects, and presentation of projects.

Neights (1981) reported other efforts of the Pennsylvania State Department include workshops for district administrators, regional media personnel, and technicians.

Rawitsch (1982) described the Minnesota Educational Computing Consortium (MECC), an organization created by the state legislature to support instructional computing
activities from elementary school through university levels. The MECC was established in 1960 and serves 433 school districts and 30 public colleges with mainframe computer and microcomputer support.

Matthews (1980) wrote that one does not have to understand computer language to use computers; however, if programming does take place in the classroom, BASIC is the most appropriate choice.

SUMMARY

The literature can be summarized by three statements:

1. Abundant resources are available for use in education. Hardware and software have been developed by the computer industry, and some competent systems have already been successful.

2. At least thirteen distinct applications have been recognized for computers in education.

3. The main reason that computers and microcomputers are not fully used in education is that educators have not exercised their initiative. Administrators have not pushed. Teacher trainers have not taught. Teachers have avoided.
Chapter 3

PROCEDURES

The purposes of this study were to delineate, analyze, and document the reasons that teachers may avoid using computer technology. The strategy of the study was to gather demographic and professional information along with a measure of the opinions held by each teacher. The results of the study will be used to make recommendations for computer training programs for incorporation into inservice teacher education programs. Accordingly, the procedures were arranged to test the hypotheses listed in Chapter One and to assist in determining goals and strategies for the teacher education program. The study was conducted in three phases:

1. Generating and testing the survey instrument.
2. Conducting the survey.
3. Analyzing the results of the survey.

GENERATING AND TESTING THE SURVEY INSTRUMENT

In the first phase, the instrument was constructed in cooperation with the Office of Research and Development of the Louisiana State Department of Education (LSDE-ORD) and selected members of the LSU faculty. Each person chosen was a professional teacher educator, administrator, or researcher.
The initial survey instrument was based on the hypotheses and on implied research questions. The writer used previous studies as landmarks from which to proceed. Dershimer (1980) and Stevens (1980) suggested several factors to be addressed with regard to teachers and their attitudes toward computers. The literature on computer literacy and on adult learning held recommendations for other factors to be investigated.

Dershimer asked about demographic information such as age, gender, years of experience, level of earned degree, and grades taught, and included an eight-item attitudinal survey. Suggestions for other attitudinal questions as well as questions on learning about computers were gleaned from Stevens. The initial survey attempted to synthesize a consensus of the concerns from the several sources.

A copy of the initial survey was provided to each person chosen to assist. Comments and suggestions from the several returns were compiled, and a second generation survey instrument was generated, distributed, retrieved, and revised as before. The second generation produced a satisfactory consensus.

The instrument was anonymous but did ask for various personal information on each respondent along with his or her opinions, perceptions, and experience with computers. The survey was tested on practicing teachers in
three graduate level classes at Louisiana State University (an educational measurements class, an instructional television class, and a media administration class) for a total of 52 persons. The validation process revealed no serious shortcomings. Only minor mechanical revisions were necessary. The final survey instrument is shown in Appendix A.

TARGET POPULATION

The population for the study included all practicing, classroom teachers in elementary and secondary public schools in the State of Louisiana. Grades included kindergarten through twelve, inclusive.

SAMPLE SELECTION

Five school districts were randomly chosen from the sixty-six public school districts listed in the 1981-1982 Louisiana School Directory. Within each selected district, schools were qualified according to grades offered in order to assure that selected schools were approximately equivalent. One elementary school, one middle school or junior high school, and one high school were randomly selected from the lists of qualified schools. The random selections were made by a Tandy Radio Shack Model One microcomputer system using "Random Sample," a part of Advanced Statistical Analysis prepared by Stephen W. Hebbler for Tandy Corporation (1979).
The sample included every teacher assigned to the selected schools. After the districts and schools were selected, coordination was made with the Office of Research and Development in the Louisiana State Department of Education and with the Coordinator of Institutional Research at Louisiana State University to prevent obviously unrepresentative selections. The list of school districts and schools is shown in Appendix B.

**CONDUCTING THE SURVEY**

Initial contact was made by telephone with the superintendent of each selected school district. In two cases, a representative of the superintendent acted in his behalf. The conversations were brief and included introduction, purpose, goals of the study, outline of procedures of the study, assurance of limited burdens caused by the study, and notification that a letter and sample of the survey would follow. In each case, the responsible person wished to inspect the survey instrument and to know the extent of costs and burdens on the district, its teachers and administrators.

After the initial telephone conversation, two copies of each letter shown in Appendix C were dispatched to the respective school districts with a stamped, self-addressed envelope and a copy of the survey instrument. The superintendent or the representative was
to sign and return one copy of the letter to indicate formal approval for the study to be conducted as requested. Permission was received from each district.

Several days before the surveys were to be distributed, follow-up calls were made to each district to assure that the principals of the participating schools had been notified that the study would be conducted in their schools. On the day before delivery, the principal of each school was notified.

A packet was prepared for each teacher in each participating school. Each packet contained a copy of the letter shown in Appendix D, a copy of the survey instrument, and a stamped, self-addressed return envelope. While the surveys were anonymous, each return envelope and each survey were coded to show the school from which they were returned. The elements of the packet were placed in a carrier envelope for delivery.

A bundle of packets was prepared for each participating school, and a letter shown in Appendix E was prepared for each principal. The letter outlined requests, goals of the study, and procedures. The bundles were delivered to the principals who served as the project coordinator at each school. The principals were to have one packet delivered to each teacher at each respective school. Each teacher was to individually complete the survey and return it in the stamped envelope.
Packets were delivered to the schools during the week of August 30, 1982. Each principal agreed to encourage the teachers at his school to complete and return the survey in a timely fashion. The first of the returns were received on September 3, 1982. Follow-up telephone calls were made during the week of September 20, 1982. By October 14, 1982, 369 of the surveys had been received out of 464 delivered. The return was 79.5 percent of the total. Of the 369 surveys returned, 350 were usable.

**ANALYZING THE RESULTS OF THE SURVEY**

The information gathered in the surveys was handled in several ways. First, information was compiled and is displayed in the next chapter directly without statistical treatment other than generation of totals and percentage figures. Next, the hypotheses were tested. Hypotheses One through Seven were tested by analyses of variance (ANOVA). Hypothesis Six was divided into three parts, and ANOVA was performed on each part. Hypothesis Eight was tested by correlation. ANOVA was performed to test the homogeneity of opinions in the sample across school districts.

As the returns were received, they were entered into a Tandy Radio Shack Model One microcomputer system using the Profile database system. Programs were written in BASIC for accessing the Profile records and
for compilation of data for use in the several statistical analyses. "Analysis of Variance" and "Correlation and Linear Regression" programs of Advanced Statistical Analysis (ASA) were used.

The results produced by the programs in ASA were consistent with results using formulas presented by Runyon and Haber. A "t-test" was performed using the correlation coefficient obtained for Hypothesis Eight. Appropriate tables presented by Runyon and Haber (1980) were used to evaluate the values generated by the computer programs.
Chapter 4

PRESENTATION AND ANALYSIS OF DATA

Information for this study was obtained from surveys distributed to 464 teachers in fifteen public schools in five parishes throughout the State of Louisiana. The survey was a seven page questionnaire. In each parish one elementary school, one middle school or junior high school, and one high school were included.

In the first section compiled data from the surveys are discussed. In the second section the eight hypotheses are addressed. Statistical profile of data from the survey is presented in Appendix F.

PERCENTAGES OF RETURN

Of the 464 survey instruments distributed, 369 (79.5 percent) were returned. The 350 usable returns represented 75.4 percent of the total. The lowest total return from any parish was 71.1 percent. The highest parish return was 84.5 percent.

The lowest return for any elementary school was 47.4 percent. The highest elementary school return was 96.9 percent. The overall elementary school return was 71.4 percent or 90 of the 126 surveys distributed.
The lowest return for any junior high or middle school was 87.0 percent. The highest middle or junior high school return was 97.9 percent. The overall return from middle and junior high schools was 92.6 percent or 113 of the 122 surveys distributed.

The lowest return for any high school was 68.6 percent. The highest of the high school returns was 89.1 percent. The overall return from high schools was 75.5 percent or 163 of the 216 surveys distributed.

INFORMATION ABOUT THE TEACHERS

Item One. Eighty-four (24 percent) of the respondents reported teaching in elementary schools. One hundred and eight (30.9 percent) reported teaching in middle or junior high schools. One hundred and fifty-eight (45.1 percent) reported teaching at the high school level.

Items Two, Eight, and Nine. Allowance was made in the survey for reporting multiple certifications. Sixty-two (17.7 percent) reported certifications in math or science. Sixty-nine (19.7 percent) reported math or science as a major or minor field of study. Two hundred and eighty-one (80.3 percent) reported no math or science background. Thirty-two persons (9.1 percent) had hobbies or other experience or training that would help them in working with computers.
Item Three. Regarding the use of video in the classroom, one hundred and nineteen (34 percent) reported that they would use it if it were available to them. Fifty-five (16.1 percent) reported that they did not use it. Eighty-nine (26 percent) reported that they seldom use it. Eighty-three (24.3 percent) reported that they use video frequently or every day. Four teachers did not answer.

Item Four. Regarding the use of learning games or simulations, eighty-eight (25.1 percent) reported that they would use them if they were available. Fifty-seven (16.3 percent) reported that they did not use games or simulations. Ninety-seven (27.7 percent) reported that they seldom use games or simulations in their classrooms. One hundred and one teachers reported that they use games or simulations daily or frequently. Seven teachers did not answer.

Item Five. Regarding the use of motion pictures or slide presentations in the classroom, only twenty-three (6.6 percent) reported that the technology was unavailable. Forty-seven (13.4 percent) reported that they did not use films or slides. One hundred and thirty-five (38.6 percent) reported that they seldom use films or slides. One hundred and thirty-nine (39.7 percent) reported that they use films or slide presentation frequently or daily. Six teachers did not answer.
Item Six. Nineteen teachers (5.4 percent) reported less than two years teaching experience. Fifty-seven (16.3 percent) reported between two and five years of experience. Eighty-eight (25.1 percent) reported between six and ten years of experience. One hundred and thirty-two (37.7 percent) reported between eleven and twenty years of teaching experience. Fifty-four (15.4 percent) of the teachers reported over twenty years of experience.

Item Seven. Only one teacher reported having less than a bachelors degree, and only two teachers reported having doctoral degrees. One hundred and eighty-six (53.1 percent) reported having bachelors degrees. Ninety (25.7 percent) reported having masters degrees, and seventy-one (20.3 percent) reported having the education specialist certificate or a masters degree plus thirty semester hours of coursework.

AGE AND GENDER OF TEACHERS

Item One. Twenty-three (6.6 percent) of the respondents were under twenty-five years of age. Sixty-four (18.3 percent) were between twenty-five and thirty-one years of age. One hundred and twenty-nine (36.9 percent) were thirty-two to thirty-nine years of age, and one hundred and one (28.9 percent) were between forty and fifty years old. Thirty-three (9.4 percent) were over fifty years old.
Item Two. The sample was predominantly female with two hundred and sixty-seven (76.3 percent) of the respondents. Male teachers accounted for eighty-three (23.7 percent) of the sample.

OPPORTUNITIES WITH COMPUTERS

Item One. "Are computers or microcomputers used in your school?" One hundred and eighty-three (52.3 percent) of the teachers did not know of any computer use in their schools. Twenty-one (6 percent) stated that computers were used only in their schools' offices. One hundred and two (29.1 percent) reported that computer use in their schools was limited to specialized academic programs. Thirty-eight (10.9 percent) have computer use limited to administration and special academic programs. Only two teachers reported free use of computers. Four teachers did not answer.

Item Two. "Is assistance available to the teachers in your school who want to learn about computers?" Three hundred and seven (87.7 percent) knew of no assistance in their schools. Three teachers (one percent) reported that a math or science teacher has been assigned to help. Five teachers (1.4 percent) reported computer sessions as part of their inservice programs. Nine (2.6 percent) knew of assistance available from commercial sources. Twenty-three teachers knew of assistance available from other sources.
Item Three. "What is the depth of your experience with computers?" Two hundred and seventy-two teachers (77.7 percent) had no experience with computers. Twenty-nine teachers (8.3 percent) had not used computers but had taken elementary programming courses. Thirty-seven teachers (10.6 percent) had used computers to run ready-made programs but had little confidence in their own abilities to generate programs without help. Ten teachers (2.9 percent) were experienced in use of computers and could write programs with minimal assistance. Only two teachers claimed to be resource persons in the use of computers.

Item Four. "In your opinion, what are the attitudes of your administrators toward the use of computer technology in your school?" Only four (1.1 percent) thought that their administrators were strongly opposed to the use of computers in their schools. One hundred and forty-one (40.3 percent) thought that their administrators have no feelings about computers. Eighty (22.9 percent) of the teachers believed that administrators tend to accept computers but that they still have some reservations. Sixty-two (17.7 percent) believed that administrators want computers for administrative and special academic programs only. Forty-nine (14 percent) believed that their administrators want to bring computer technology into all parts of the school when they can.
DATA FROM OPINION ITEMS

The items in part four are arranged in a Likert-type format with possible responses from "strongly agree" through "no opinion" to "strongly disagree."

Items one through nine constituted the opinion part of the survey. Responses for the opinion items used a weighted value on a continuum from "strongly agree" (SA) to "strongly disagree" (SD). Items one, five, seven, and nine were considered positive attitudinal statements and received five points for "SA" to one point for "SD." Items two, three, four, six, and eight were considered negative attitudinal statements and received one point for "SA" to five points for "SD."

Neutral opinion or "no opinion" (N/O) received three points on both scales. The range of scores for the opinion items was from 19 to 45 with a mean of 34.95 and standard deviation of 4.92 for the sample. A person with neutral opinions toward computers would receive a score of twenty-seven.

Items ten through fourteen allowed teachers to express preferences in goals and methods in learning about computers. The Likert-type responses were offered only for parallel construction, and no weighting is intended in interpreting the results.
Item One. One hundred and twenty-six (36 percent) teachers strongly agreed that there is potential for computers as tools in education. One hundred and ninety-five (55.7 percent) agreed. Twenty (5.7 percent) had no opinion. Eight (2.3 percent) disagreed, and one strongly disagreed.

Item Two. Sixty-two teachers (17.7 percent) strongly disagreed with the statement "I am uneasy about having computers in our classrooms because of their potential for dehumanizing the learning environment." One hundred and seventy-five (fifty percent) disagreed. Fifty-eight (16.6 percent) had no opinion. Fifty teachers (14.3 percent) agreed with the statement, and five teachers (1.4 percent) strongly agreed.

Item Three. Two hundred and seven teachers (59.1 percent) strongly disagreed with the statement "Computers could eventually displace teachers." One hundred and eighty (30.6 percent) disagreed. Twenty (5.7 percent) had no opinion. Eleven teachers (3.1 percent) agreed with the statement, and four (1.1 percent) strongly agreed.

Item Four. Eight teachers (2.3 percent) strongly agreed that the importance and impact of computers on education have been overstated. Sixty-two teachers (17.7 percent) agreed. One hundred and thirty-four (38.3 percent) had no opinion. One hundred
and fourteen teachers (32.6 percent) disagreed with the statement, and thirty-three (9.4 percent) of the teachers strongly disagreed.

Item Five. "Most teachers need some understanding of computers even if the knowledge is limited to running pre-packaged programs." Seventy-seven teachers (22 percent) strongly agreed, and two hundred and nine (59.7 percent) agreed. Thirty-five teachers (10 percent) had no opinion. Twenty-five teachers (7.1 percent) disagreed with the statement, and four teachers (1.1 percent) strongly disagreed.

Item Six. "The usefulness of computers and microcomputers in education is limited to math, science, and teaching about computing." Seventy teachers (20 percent) strongly disagreed, and one hundred and eighty-five (52.9 percent) disagreed. Sixty-seven teachers (19.1 percent) had no opinion. Twenty-nine (8.3 percent) agreed with the statement, and there were no strong agreements.

Item Seven. "I believe computers or microcomputers will find a place in my field of teaching." Ninety teachers (25.7 percent) strongly agreed, and one hundred and seventy-five (fifty percent) agreed. Forty-nine teachers (14 percent) had no opinion. Thirty teachers (8.6 percent) disagreed with the statement, and six teachers (1.7 percent) strongly disagreed.
Item Eight. "Although microcomputers are simpler than the large computers, they are still too complex to be practical as classroom assets." Forty-eight teachers (13.7 percent) strongly disagreed, and one hundred and fifty-five teachers (44.3 percent) disagreed. One hundred and ten (31.4 percent) had no opinion. Thirty-five teachers (10 percent) agreed, and 2 teachers strongly agreed with the statement.

Item Nine. "I would welcome a computer that could give me more time to spend in actual teaching duties, and I would take the time to learn to use it." One hundred and eight teachers (30.9 percent) strongly agreed, and one hundred and eighty-seven (53.4 percent) agreed. Forty-two (12 percent) had no opinion. Ten teachers (2.6 percent) disagreed with the statement, and three teachers strongly disagreed.

LEARNING ABOUT COMPUTERS

Item Ten. "There should be some special incentive program for teachers who are willing to learn about computers." Ninety-one teachers (26 percent) strongly agreed, and one hundred and eighty-six teachers (53.1 percent) agreed. Forty-three teachers (12.3 percent) had no opinion. Twenty-four teachers (6.9 percent) disagreed with the statement, and seven teachers (2.0 percent) strongly disagreed.
Item Eleven. "I am interested in what computers can do for me, but I am not interested in learning to be a computer programmer, even on a small scale." The distribution as well as several comments indicate some confusion on this item. The distribution was bimodal and nearly symmetrical.

Item Twelve. "If I were to learn to use computers or microcomputers, I would want to learn at my own pace without having to keep up with a class or formal course." Thirty-nine teachers (11.1 percent) strongly agreed, and one hundred and eighty-two (52 percent) agreed with the statement. Sixty teachers (17.1) had no opinion. Sixty-five teachers (18.6 percent) disagreed, and five teachers strongly disagreed (1.4 percent).

Item Thirteen. "If I were to learn to use computers or microcomputers, I would want to learn with the equipment and program materials I would be using in my job." One hundred and ten teachers (31.4 percent) strongly agreed, and two hundred and twenty teachers (62.9 percent) agreed with the statement. Seventeen teachers (4.6 percent) had no opinion. Three teachers disagreed, and one strongly disagreed with the statement.

Item Fourteen. "I would be more willing to take my time to learn about more computers if I could be shown that the programs I would be using really work and that they would help me do my job." One hundred and twenty-two teachers (34.8 percent) strongly agreed, and
two hundred and five teachers (58.6 percent) agreed with the statement. Seventeen teachers (4.6 percent) had no opinion. Five teachers disagreed, and two strongly disagreed.

HOMOGENEITY OF THE SAMPLE

The homogeneity of responses to the opinion items of the survey was tested across the school districts in the sample using analysis of variance. The differences in the means did not meet the test for significance at the .10 level. Homogeneity of the sample is assumed. Table One lists the results of the ANOVA. Table Two lists the descriptive statistics for each district.

Table One
Responses to Opinion Items Across Districts in Sample
Analysis of Variance

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of Squares</th>
<th>Degrees of Freedom</th>
<th>Mean Squares</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>8140.64</td>
<td>349</td>
<td></td>
</tr>
<tr>
<td>Between</td>
<td>143.238</td>
<td>4</td>
<td>35.8096</td>
</tr>
<tr>
<td>Within</td>
<td>7997.4</td>
<td>345</td>
<td>23.1809</td>
</tr>
</tbody>
</table>

F-ratio = 1.54479
Probability of Chance = 0.188
Table Two  
Responses to Opinion Items Across Districts in Sample
Descriptive Statistics

<table>
<thead>
<tr>
<th>District</th>
<th>Number</th>
<th>Mean Score</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grant</td>
<td>77</td>
<td>35.0779</td>
<td>4.8363</td>
</tr>
<tr>
<td>Livingston</td>
<td>46</td>
<td>33.8913</td>
<td>4.77135</td>
</tr>
<tr>
<td>Ouachita</td>
<td>78</td>
<td>35.9872</td>
<td>5.03896</td>
</tr>
<tr>
<td>Terrebonne</td>
<td>120</td>
<td>34.775</td>
<td>4.87922</td>
</tr>
<tr>
<td>Webster</td>
<td>29</td>
<td>35.4483</td>
<td>3.81349</td>
</tr>
</tbody>
</table>

TESTING OF HYPOTHESES

The first seven hypotheses were tested using the analysis of variance (ANOVA) technique. Hypothesis Six was tested in three parts. The last hypothesis was tested using correlational techniques.

Hypothesis One stated "Significant relationships will be found between education levels of teachers and the responses to the opinion questions on the survey instrument." Only one teacher reported having no bachelors degree, and only two doctoral degrees were reported. The numbers were not considered sufficient for inclusion in the analysis, and only bachelors degrees, masters degrees, and the education specialist certificate and masters degree plus thirty hours were considered. Table Three presents a
summary of results from the ANOVA, and Table Four presents descriptive statistics. The results met the test for significance at the .05 level.

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of Squares</th>
<th>Degrees of Freedom</th>
<th>Mean Squares</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>8065.14</td>
<td>346</td>
<td></td>
</tr>
<tr>
<td>Between</td>
<td>222.109</td>
<td>2</td>
<td>111.055</td>
</tr>
<tr>
<td>Within</td>
<td>7843.03</td>
<td>344</td>
<td>22.7995</td>
</tr>
</tbody>
</table>

F-ratio = 4.87092  
Probability of Chance = 0.008

<table>
<thead>
<tr>
<th>Degree</th>
<th>Number</th>
<th>Mean Score</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelors</td>
<td>185</td>
<td>34.2865</td>
<td>4.9597</td>
</tr>
<tr>
<td>Masters</td>
<td>90</td>
<td>35.7889</td>
<td>4.636</td>
</tr>
<tr>
<td>Specialist or Masters +</td>
<td>72</td>
<td>36</td>
<td>4.4470</td>
</tr>
</tbody>
</table>
Hypothesis Two stated "Significant relationships will be found between teacher age and responses to the opinion questions on the survey instrument."

Distribution of ages was nearly normal with some skewing toward the older groups. The mean score of the forty to fifty age group was highest with the eldest and youngest age groups having the lowest mean scores. Table Five presents a summary of the ANOVA, and Table Six presents descriptive statistics. The result did not meet the test for significance at the .05 level.

Table Five
Age of Teachers and Responses to Opinion Items
Analysis of Variance

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of Squares</th>
<th>Degrees of Freedom</th>
<th>Mean Squares</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>8139.92</td>
<td>349</td>
<td></td>
</tr>
<tr>
<td>Between</td>
<td>199.365</td>
<td>4</td>
<td>49.8413</td>
</tr>
<tr>
<td>Within</td>
<td>7940.56</td>
<td>345</td>
<td>23.0161</td>
</tr>
</tbody>
</table>

F-ratio = 2.1655
Probability of Chance = 0.072
Table Six
Age of Teachers and Responses to Opinion Items
Descriptive Statistics

<table>
<thead>
<tr>
<th>Age</th>
<th>Number</th>
<th>Mean Score</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 25</td>
<td>23</td>
<td>33.8696</td>
<td>5.1725</td>
</tr>
<tr>
<td>25 - 31</td>
<td>64</td>
<td>35.1719</td>
<td>5.2962</td>
</tr>
<tr>
<td>32 - 39</td>
<td>129</td>
<td>35.1705</td>
<td>4.8351</td>
</tr>
<tr>
<td>40 - 50</td>
<td>101</td>
<td>35.7228</td>
<td>4.2121</td>
</tr>
<tr>
<td>Over 50</td>
<td>33</td>
<td>33.1515</td>
<td>5.0568</td>
</tr>
</tbody>
</table>

Hypothesis Three stated "Significant relationships will be found between teacher gender and the responses to the opinion questions on the survey instrument." Females in the sample outnumbered males by more than three to one, and females had a higher mean score than males. Table Seven presents a summary of the ANOVA results, and Table Eight presents the descriptive statistics. The result did not meet the test for significance at the .05 level.
Table Seven
Teacher Gender and Responses to Opinion Items
Analysis of Variance

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of Squares</th>
<th>Degrees of Freedom</th>
<th>Mean Squares</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>8131.58</td>
<td>348</td>
<td></td>
</tr>
<tr>
<td>Between</td>
<td>53.2266</td>
<td>1</td>
<td>53.2266</td>
</tr>
<tr>
<td>Within</td>
<td>8078.35</td>
<td>347</td>
<td>23.2806</td>
</tr>
</tbody>
</table>

F-ratio = 2.2863
Probability of Chance = 0.127

Table Eight
Teacher Gender and Responses to Opinion Items
Descriptive Statistics

<table>
<thead>
<tr>
<th>Gender</th>
<th>Number</th>
<th>Mean Score</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>267</td>
<td>35.2772</td>
<td>4.7206</td>
</tr>
<tr>
<td>Male</td>
<td>82</td>
<td>34.3537</td>
<td>5.1530</td>
</tr>
</tbody>
</table>

Hypothesis Four stated "Significant relationships will be found between the levels taught by teachers and their responses to the opinion questions on the survey instrument." The high school teachers had the highest mean
score followed by the junior high and middle school teachers. The elementary school teachers had the lowest mean score on the opinion items; however, the result was not significant at the .05 level. Table Nine presents a summary of the results of the ANOVA, and Table Ten presents the descriptive statistics.

Table Nine
Teaching Level and Responses to Opinion Items
Analysis of Variance

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of Squares</th>
<th>Degrees of Freedom</th>
<th>Mean Squares</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>8140.64</td>
<td>349</td>
<td></td>
</tr>
<tr>
<td>Between</td>
<td>124.188</td>
<td>2</td>
<td>62.0938</td>
</tr>
<tr>
<td>Within</td>
<td>8016.45</td>
<td>347</td>
<td>23.1022</td>
</tr>
</tbody>
</table>

F-ratio = 2.6878
Probability of Chance = 0.068
Table Ten
Teaching Level and Responses to the Opinion Items
Descriptive Statistics

<table>
<thead>
<tr>
<th>Level</th>
<th>Number</th>
<th>Mean Score</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elementary</td>
<td>84</td>
<td>34.4643</td>
<td>5.0144</td>
</tr>
<tr>
<td>Middle and</td>
<td>108</td>
<td>34.5463</td>
<td>4.2850</td>
</tr>
<tr>
<td>Junior High</td>
<td>158</td>
<td>35.7089</td>
<td>5.0253</td>
</tr>
</tbody>
</table>

Hypothesis Five stated "Significant relationships will be found between academic majors and minors of teachers and their responses to the opinion questions on the survey instrument." Academic major and minor fields of study were classified as math or science and not math or science. The teachers with math or science as major or minor fields of study had a higher mean score on the opinion questions; however, the result did not meet the test for significance at the .05 level. Table Eleven presents a summary of the results of the ANOVA, and Table Twelve presents the descriptive statistics.
Table Eleven
Academic Disciplines and Responses to the Opinion Items
Analysis of Variance

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of Squares</th>
<th>Degrees of Freedom</th>
<th>Mean Squares</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>8140.64</td>
<td>349</td>
<td></td>
</tr>
<tr>
<td>Between</td>
<td>56.6953</td>
<td>1</td>
<td>56.6953</td>
</tr>
<tr>
<td>Within</td>
<td>8083.95</td>
<td>348</td>
<td>23.2297</td>
</tr>
</tbody>
</table>

F-ratio = 2.4406
Probability of Chance = 0.115

Table Twelve
Academic Disciplines and Responses to the Opinion Items
Descriptive Statistics

<table>
<thead>
<tr>
<th>Discipline</th>
<th>Number</th>
<th>Mean Score</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math / Science</td>
<td>69</td>
<td>35.8696</td>
<td>4.8809</td>
</tr>
<tr>
<td>Other</td>
<td>281</td>
<td>34.8505</td>
<td>4.8048</td>
</tr>
</tbody>
</table>
Hypothesis Six stated "Significant relationships will be found between frequency of use of nontraditional media by teachers and their responses to the opinion questions on the survey instrument." This hypothesis was tested in three parts.

1. Teacher use of video.
2. Teacher use of games and simulations.
3. Teacher use of films and slides.

With each type of media, the responses were divided into five categories: not used because of nonavailability, not used at all, seldom used, frequent use, and daily use. For purposes of analysis, responses for frequent use and daily use were combined.

Teachers were asked about their classroom use of television and video equipment. The teachers who do not use the technology received the lowest mean scores on the opinion items, and the frequent and daily users received the highest mean scores. Table Thirteen presents a summary of the results of the ANOVA, and Table Fourteen lists the descriptive statistics. The result did not meet the test for significance at the .05 level.
Table Thirteen
Use of Television and Responses to the Opinion Items
Analysis of Variance

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of Squares</th>
<th>Degrees of Freedom</th>
<th>Mean Squares</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>8083.36</td>
<td>342</td>
<td></td>
</tr>
<tr>
<td>Between</td>
<td>110.703</td>
<td>3</td>
<td>36.901</td>
</tr>
<tr>
<td>Within</td>
<td>7972.66</td>
<td>339</td>
<td>23.5182</td>
</tr>
</tbody>
</table>

F-ratio = 1.5691
Probability of Chance = 0.195

Table Fourteen
Use of Television and Responses to the Opinion Items
Descriptive Statistics

<table>
<thead>
<tr>
<th>Use</th>
<th>Number</th>
<th>Mean Score</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unavailable</td>
<td>116</td>
<td>35.3707</td>
<td>5.2464</td>
</tr>
<tr>
<td>Do Not Use</td>
<td>55</td>
<td>34.1636</td>
<td>4.3023</td>
</tr>
<tr>
<td>Seldom Use</td>
<td>89</td>
<td>34.4607</td>
<td>4.6270</td>
</tr>
<tr>
<td>Daily or Frequent Use</td>
<td>83</td>
<td>35.6024</td>
<td>4.8437</td>
</tr>
</tbody>
</table>
Teachers were asked about their classroom use of learning games and simulations. Teachers who do not use the technology received the lowest mean score on the opinion items, and teachers who reported that they would use games if they were available received the highest scores. Teachers who reported frequent or daily use of learning games received the second highest mean score. Table Fifteen presents a summary of the results of the ANOVA, and Table Sixteen lists the descriptive statistics. The result met the test for significance at the .05 level.

Table Fifteen
Use of Learning Games and Responses to the Opinion Items
Analysis of Variance

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of Squares</th>
<th>Degrees of Freedom</th>
<th>Mean Squares</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>8081.51</td>
<td>341</td>
<td></td>
</tr>
<tr>
<td>Between</td>
<td>371.32</td>
<td>3</td>
<td>123.773</td>
</tr>
<tr>
<td>Within</td>
<td>7710.19</td>
<td>338</td>
<td>22.8112</td>
</tr>
</tbody>
</table>

F-ratio  = 5.4260
Probability of Chance  = 0.002
Table Sixteen
Use of Learning Games and Responses to Opinion Items
Descriptive Statistics

<table>
<thead>
<tr>
<th>Use</th>
<th>Number</th>
<th>Mean Score</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unavailable</td>
<td>87</td>
<td>36.2184</td>
<td>5.2616</td>
</tr>
<tr>
<td>Do Not Use</td>
<td>57</td>
<td>33.0526</td>
<td>4.7676</td>
</tr>
<tr>
<td>Seldom Use</td>
<td>97</td>
<td>34.7217</td>
<td>4.1327</td>
</tr>
<tr>
<td>Daily or Frequent Use</td>
<td>101</td>
<td>35.4356</td>
<td>4.9162</td>
</tr>
</tbody>
</table>

Teachers were asked about their classroom use of motion pictures or slide presentations. Films and slides are usually considered traditional media; however, this question was included as a benchmark. Teachers who do not use films or slides received the lowest mean score. The result did not meet the test for significance at the .05 level. Table Seventeen presents a summary of the results of the ANOVA, and Table Eighteen lists the descriptive statistics.
Table Seventeen
Use of Films and Slides and Responses to the Opinion Items
Analysis of Variance

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of Squares</th>
<th>Degrees of Freedom</th>
<th>Mean Squares</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>8028.33</td>
<td>343</td>
<td></td>
</tr>
<tr>
<td>Between</td>
<td>130.799</td>
<td>3</td>
<td>43.5996</td>
</tr>
<tr>
<td>Within</td>
<td>7897.53</td>
<td>340</td>
<td>23.228</td>
</tr>
</tbody>
</table>

F-ratio = 1.8770
Probability of Chance = 0.132

Table Eighteen
Use of Films and Slides and Responses to the Opinion Items
Descriptive Statistics

<table>
<thead>
<tr>
<th>Use</th>
<th>Number</th>
<th>Mean Score</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unavailable</td>
<td>23</td>
<td>34.6522</td>
<td>6.8730</td>
</tr>
<tr>
<td>Do Not Use</td>
<td>47</td>
<td>33.5532</td>
<td>5.2163</td>
</tr>
<tr>
<td>Seldom Use</td>
<td>135</td>
<td>35.3556</td>
<td>4.4124</td>
</tr>
<tr>
<td>Daily or Frequent Use</td>
<td>139</td>
<td>35.3094</td>
<td>4.6608</td>
</tr>
</tbody>
</table>
Hypothesis Seven stated "Significant relationships will be found between previous use of computers and microcomputers by teachers and their responses to the opinion questions on the survey instrument." Over seventy-five percent of the sample reported no experience at all with computers, and only two teachers considered themselves resource persons with regard to computers. The two most competent categories were combined and received the highest mean score. The group with no experience received the lowest mean score. Table Nineteen presents a summary of the results of the ANOVA, and Table Twenty lists the descriptive statistics. The result met the test for significance at the .05 level.

Table Nineteen
Computer Experience and Responses to the Opinion Items
Analysis of Variance

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of Squares</th>
<th>Degrees of Freedom</th>
<th>Mean Squares</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>7993.2</td>
<td>347</td>
<td></td>
</tr>
<tr>
<td>Between</td>
<td>553.383</td>
<td>3</td>
<td>184.461</td>
</tr>
<tr>
<td>Within</td>
<td>7439.82</td>
<td>344</td>
<td>21.6274</td>
</tr>
</tbody>
</table>

F-ratio = 8.5291
Probability of Chance = 0.000
Hypothesis Eight stated "Significant relationships will be found between teacher perceptions of the threats and limitations of microcomputers and teacher receptiveness toward microcomputers." This hypothesis was tested by comparing the sum of scores of items two, three, six, and eight with the sum of items one, four, five, seven, and nine for each teacher. A "Pearson r" was derived and evaluated by the "Student t" formula. The result was significant at the .05 level. Table Twenty-one presents a summary of the results.
Table Twenty-one
Perceptions of Limitations and Receptiveness
Correlation and Evaluation

<table>
<thead>
<tr>
<th>Limitations</th>
<th>Receptiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean = 15.5686</td>
<td>Mean = 19.5143</td>
</tr>
<tr>
<td>S.D. = 2.5286</td>
<td>S.D. = 2.9109</td>
</tr>
</tbody>
</table>

Number of Pairs = 350
Correlation Coefficient = 0.562
Degrees of Freedom = 348
t-value = 12.675
critical value for t = 1.960
Chapter 5

FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

The findings presented in this chapter are based on the data presented in the previous chapter and were considered within the context of the hypotheses. The conclusions are based on the findings and are considered along with the review of the literature. The recommendations are derived from the conclusions and contain strategies for promoting computer literacy among teachers as well as suggestions for further research.

FINDINGS

The mean score and the range of scores on the opinion questions on the survey indicate generally positive attitudes on the parts of teachers. A neutral attitude should have scored 27 points. The mean score for the sample was 34.95. The lowest mean score of any group was 33.05 (teachers who do not use games or simulations). The highest mean score of any group was 38.33 (teachers who can use and program computers with minimal assistance).

Hypothesis One. A positive relationship appears to exist between the level of degree possessed by a teacher and the perceptions the teacher will have of computer technology. The mean score for persons with the specialist certificate or the masters degree plus thirty hours was nearly two points higher than the score for persons with
only bachelors degrees. The mean score for persons with masters degrees was one and a half points higher than the score for persons with only bachelors degrees. Dershimer (1980) suggested that this relationship might be found.

Hypothesis Two. The relationship between teacher age and teacher perceptions of computer technology is marginal and not statistically significant. The oldest and the youngest groups had the lowest mean scores with the forty to fifty age group having the highest mean score. Dershimer's study (1980) was not conclusive but indicated a trend for the fifty-one to sixty and the twenty-one to thirty age groups to be more willing to innovate using microcomputers. The absence of significant findings in both studies combined with the apparent conflict in trends suggests that teacher age may not be a significant factor in teacher attitudes toward computers.

Hypothesis Three. The result was consistent with previous studies. Although the relationship between teacher gender and teacher attitudes toward computers is marginal and not statistically significant, the results in this study suggest that female teachers may be more receptive to computer technology than male teachers. The mean score on the opinion items was nearly one point higher for females than for males.

Hypothesis Four. The relationship between the level at which teachers work and their opinions toward computers was not significant but was indicative of a
trend. The mean score for high school teachers was higher than the scores for junior high teachers or elementary school teachers by more than a point. Elementary school teachers had the lowest mean score.

Hypothesis Five. Teachers with math or science major or minor fields of study had a mean score one point higher than teachers from other disciplines. In this study, the relationship was not significant; however, the trend is consistent with results from other studies.

Hypothesis Six. Teachers were questioned about their classroom use of three types of media: video, learning games and simulations, and films and slide presentations. Opinions were evaluated for each type.

The result is not significant, but a trend appears to exist between use of television and opinions toward computers. Teachers who use television or video frequently or daily had a mean score of 35.60 compared to a mean score of 34.16 for teachers who do not use television or video in their classrooms.

A significant relationship appears to exist between use of games and simulations and teacher opinions toward computers. Teachers who use games or simulations frequently or daily had a mean score of 35.44 compared to a mean score of 33.05 for teachers who do not use games or simulations.

The relationship between use of films and slides was not significant but was indicative of a trend.
Teachers who use films and slides in their classrooms had a mean score of 35.31 compared to a mean score of 33.55 for teachers who do not use films and slides.

Hypothesis Seven. A strong relationship appears to exist between the level of teacher experience with computers and teacher opinions toward computers. Teachers who had only an elementary course and no experience with computers had a mean score nearly two and a half points higher than teachers with no experience or instruction.

Hypothesis Eight. A strong relationship appeared to exist between perceptions of negative factors of computer technology and perceptions of the usefulness of computers in schools. When teachers perceived threats or limitations of computers, they also tended to discount the usefulness of computers as classroom assets.

CONCLUSIONS

The overall attitude of public school teachers toward computer technology was positive and constructive, and the expected fears were not evident. Most teachers had no experience or training with computers, and few had confidence in their abilities to learn about computers. While teachers had reservations about some aspects of using computers in the classroom, they believed computers will find a place. Over 90 percent of the teachers saw potential for computers in schools, and over 80 percent felt that most teachers need some understanding of computers. Over 75 percent of the teachers believed that computers would
find places in their fields, and over 70 percent saw classroom applications beyond teaching of math, science, and computer science. They would welcome the opportunity to learn about and begin utilizing computers. Age, gender, teaching level, and fields of study did not appear to be significant factors in the predisposition of teachers to learn about computers.

While teachers saw computers as effective tools, many did not believe the technology would reach them in the near future. Written comments were made by sixty-eight of the teachers concerning factors not specifically addressed in the study. Nearly half of the comments were related to priorities for teacher time and priorities for allocation of funding and other school resources for basic needs including improved physical facilities, adequate textbooks, adequate traditional media, and higher pay.

The leadership role of the school principal has been well established, and other studies have suggested that leadership and teacher perceptions of administrator commitment to computers might be significant factors affecting teacher attitudes. A peripheral analysis was performed on that relationship (Survey Part One, Item four). The results were significant at the .001 level. Where teachers perceived neutral administrator opinions regarding computers, the opinion scores were lowest. Where teachers perceived administration attitudes
supporting computers, the opinion scores were highest. The relationship should be further investigated and exploited.

The unfortunate fact was that the technology was available to few teachers in the State. While the situation is improving, at least two recent independent studies have revealed that computers are present in only 25 percent of Louisiana schools. Nearly half of the respondents in this study reported that computers were present in their schools, but the use was divided between specialized academic programs and administrative applications.

Few convenient opportunities for teachers to learn about computers were reported. Over 63 percent of the respondents would choose self-paced, individualized training programs, and over 94 percent wanted their training programs to use the equipment and materials which would be used in their environments. Where programs did exist, the emphasis was usually on training in programming with little regard for the individual competencies required by each of the teachers. Computer courses and workshops tended to be onetime events or short courses with little concern for the continuing development of the skills of the teacher.
RECOMMENDATIONS

Recommendations are made in two categories. The first set of recommendations may be incorporated as considerations in computer training programs for teachers. The second set of recommendations are for questions to be answered by further research.

The following recommendations are made for computer training programs for teachers:

1. That computer training programs be made available to all teachers.
2. That the level and content of computer training programs be tailored to meet individual needs.
3. That computer equipment be made available to individual teachers engaged in the training programs.
4. That computer training be incorporated with other continuing education programs for teachers.
5. That computer expertise be developed in teachers at various levels.
6. That software for classroom management and computer-managed instruction be developed that will allow teachers to utilize classroom computer equipment while building computer skills.

The following recommendations are made for further research in computer literacy for teachers:

1. That research be conducted to determine needs of individual teachers regarding content of programs and depth of computer expertise required.
2. That research be conducted to determine timing and emphasis for computer programming instruction in teacher training programs.
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APPENDIX A. THE SURVEY INSTRUMENT
SURVEY ON COMPUTERS IN EDUCATION

The purpose of this survey is to gather information about experience you as a practicing teacher have had with computers, about feelings you have toward computers, and about potential uses and limitations you see for incorporation of computer technology in schools.

Please be sure to answer all items by choosing the response that most closely matches your opinion or situation. In considering your answers, do not include devices such as calculators and "pocket computers." Space is provided at the back of the booklet for you to expand on your answers.

Thank you for your time and your assistance in completing and returning this survey. All responses will be treated as personal and confidential. Your privacy will be protected!

Leroy C. Stensel, Jr.
Division of Instructional Support and Development
116 Himes Hall
Louisiana State University
Baton Rouge, Louisiana 70803
Part One. Your Opportunities and Experience with Computers.

1. Are computers or microcomputers used in your school?
   a. Not at all (or not that I know about).
   b. Yes, but only in the office for administration.
   c. Yes, but use is limited to specialized academic programs.
   d. Yes, their use is limited to specialized academic programs and administrative applications.
   e. Yes, they are broadly and freely used in a number of applications.

2. Is assistance available to the teachers in your school who want to learn about computers?
   a. No (or none that I know about).
   b. Yes, one of our math/science teachers has been assigned to help other teachers who are interested.
   c. Yes, we have had sessions as parts of our inservice program.
   d. Yes, a local computer or audiovisual company has given classes.
   e. Yes, but the assistance is from a source not mentioned.

3. What is the depth of your experience with computers?
   a. I have not had the opportunity to use computers at all.
   b. I have not used computers but have taken elementary course(s) in some form of computer programming.
   c. I have used microcomputers (or large computers) to run ready-made programs, but I have little confidence in my ability to generate programs without help.
   d. I have used microcomputers (or large computers) and can write and run my own programs with minimal assistance.
   e. I consider myself a resource person with regard to computers and their use.

4. In your opinion, what are the attitudes of your administrators toward the use of computer technology in your school?
   a. They are strongly opposed to the use of computers in schools.
   b. They have no feelings about computers as far as I can tell.
   c. They tend to accept the usefulness of computers but have some reservations.
   d. They want computers in the school for administrative purposes and/or for limited academic purposes only.
   e. They want to bring computer technology into all parts of the school as soon as they can.
Part Two. Your Professional Background and Teaching Experience.
Please circle the most appropriate answer or fill in the correct information.

1. The grade(s) you teach?
   a. Lower Elementary
   b. Upper Elementary
   c. Middle
   d. Junior High
   e. Senior High
   f. Combination (please specify. ______________________)

2. The subject(s) you are certified to teach? (indicate all appropriate areas.)
   a. Elementary certification
   b. Math
   c. Science
   d. English
   e. Foreign Language
   f. Social Studies
   g. Vocational Subjects or Business Education
   h. Other (please specify ______________________)

3. Your classroom use of television or video equipment?
   a. I would use it, but it is not available to me.
   b. I do not use it.
   c. seldom.
   d. frequent.
   e. daily.

4. Your classroom use of learning games or simulations?
   a. I would use them, but they are not available to me.
   b. I do not use them.
   c. seldom.
   d. frequent.
   e. daily.

5. Your classroom use of motion pictures or slide presentations?
   a. I would use them, but they are not available to me.
   b. I do not use them.
   c. seldom.
   d. frequent.
   e. daily.

6. Your years of teaching experience?
   a. under 2 years.
   b. between 2 and 5 years.
   c. between 6 and 10 years.
   d. between 11 and 20 years.
   e. Over 20 years.
7. Your highest degree?
   a. I have not yet completed baccalaureate studies.
   b. Bachelors.
   c. Masters.
   d. Ed.S. or Masters degree plus 30 semester hours.
   e. Doctoral degree.

8. Do you have math, a science, or computer science as a major or minor field of study for any of your degrees?
   a. No.
   b. Yes. (please specify. __________________________)

9. Do you have a hobby or other experience or training that may help you in working with computers?
   a. No.
   b. Yes. (please specify. __________________________)

Part Three. Very personal information. Please circle the most appropriate answer.

1. Your age:
   a. under 25.
   b. 25-31.
   c. 32-39.
   d. 40-50.
   e. over 50.

2. Your gender:
   a. male.
   b. female.
Part Four. Your Opinions of the Value of Computers in Education.

Please circle the appropriate response by using the following key. There are no right or wrong answers. These items are simply to assist the researchers in gauging opinions. Select answers as your judgment dictates.

SA - Strongly Agree - You vigorously agree with the statement.
A - Agree - You believe the statement to be generally true.
N/O - No Opinion - You have no opinion or are undecided on this question.
D - Disagree - You believe the statement to be generally false.
SD - Strongly Disagree - You vigorously disagree with the statement.

SA A N/O D SD
1. I see potential for computers as tools in education.
SA A N/O D SD
2. I am uneasy about having computers in our classrooms because of their potential for dehumanizing the learning environment.
SA A N/O D SD
SA A N/O D SD
4. The importance and impact of computers on education have been overstated.
SA A N/O D SD
5. Most teachers need some understanding of computers even if the knowledge is limited to running prepackaged programs.
SA A N/O D SD
6. The usefulness of computers and microcomputers in education is limited to math, science, and teaching about computing.
SA A N/O D SD
7. I believe computers or microcomputers will find a place in my field of teaching.
SA A N/O D SD
8. Although microcomputers are simpler than the large computers, they are still too complex to be practical as classroom assets.
SA A N/O D SD
9. I would welcome a computer that could give me more time to spend in actual teaching duties, and I would take the time to learn to use it.
Part Four Continued. The following statements deal with ways teachers may learn to use computers.

Please circle the appropriate response by using the following key. There are no right or wrong answers. These items are simply to assist the researchers in gauging opinions. Select answers as your judgment dictates.

<table>
<thead>
<tr>
<th>SA</th>
<th>A</th>
<th>N/O</th>
<th>D</th>
<th>SD</th>
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<tbody>
<tr>
<td>10.</td>
<td>There should be some special incentive program for teachers who are willing to learn about computers.</td>
<td></td>
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<tr>
<td>11.</td>
<td>I am interested in what computers can do for me, but I am not interested in learning to be a computer programmer, even on a small scale.</td>
<td></td>
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</tr>
<tr>
<td>12.</td>
<td>If I were to learn to use computers or micro-computers, I would want to learn at my own pace without having to keep up with a class or formal course.</td>
<td></td>
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<tr>
<td>13.</td>
<td>If I were to learn to use computers or micro-computers, I would want to learn with the equipment and program materials I would be using in my job.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>14.</td>
<td>I would be more willing to take my time to learn about more computers if I could be shown that the programs I would be using really work and that they would help me do my job.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Part Five. Your Comments. Please take this space to record any comments that you believe are appropriate concerning this survey. The researcher will respond to your suggestions. If you desire a copy of the results, place your name and address below or send a postcard separately.
APPENDIX B. LIST OF DISTRICTS AND SCHOOLS
LIST OF DISTRICTS AND SCHOOLS

Grant Parish School Board - P. O. Box 208 Colfax, LA 71417
1. Pollock Elementary School - Pollock, LA 71467
2. John W. Gaines Middle School - Montgomery, LA 71454
3. Grant High School - Dry Prong, LA 71423

Livingston Parish School Board - P. O. Box 128 Livingston, LA 70754
1. Seventh Ward Elementary School - Denham Springs, LA 70726
2. Walker Junior High School - Walker, LA 70785
3. Springfield High School - Springfield, LA 70462

Ouachita Parish School Board - P. O. Box 1642 Monroe, LA 71201
1. Highland Elementary School - Wellereman Road
   West Monroe, LA 71291
2. Ouachita Parish Junior High School - Nutland Road
   Monroe, LA 71202
3. Ouachita Parish High School - Kansas & Bank Streets
   Monroe, LA 71203

Terrebonne Parish School Board - P. O. Box 5097
Houma, LA 70361
1. Broadmoor Elementary School - 1010 Broadmoor Avenue
   Houma, LA 70360
2. Evergreen Junior High School - 4134 West Main Street
   Houma, LA 70360
3. H. L. Bourgeois High School - Route 1, Box 242
   Gray, LA 70359

Webster Parish School Board - P. O. Box 520
Minden, LA 71055
1. Dubberly Elementary School - Dubberly, LA 71024
2. Central Junior High School - Route 1, Box 113
   Dubberly, LA 71024
3. Sibley High School - P. O. Box 8 Sibley, LA 71073
APPENDIX C. LETTERS TO SUPERINTENDENTS WITH APPROVING ENDORSEMENTS
August 12, 1982

Mr. T. O. Harrison, Superintendent
Grant Parish School Board
Post Office Box 208
Colfax, Louisiana 71417

Dear Mr. Harrison:

I wish to conduct a survey of the teachers in three schools in your district. The survey will require very little time or effort on the parts of your principals and teachers. Supporting the study will cost your district nothing, and I will not ask for any privileged information. The purposes of the study are to delineate, analyze, and document the reasons that teachers avoid using computer technology and to make recommendations for developing computer literacy training programs for teachers.

The survey took about five minutes of each participant’s time during the validation process. A copy of the instrument is enclosed for your examination. Please treat it as a sensitive document.

I will deliver packets containing the survey materials to each school and ask that the principal have the packets distributed for completion during the week after Labor Day. I will furnish a stamped, self-addressed envelope with each packet so the survey can be returned without further trouble to you.

Specifically, I am asking that you allow me to conduct the survey at Pollock Elementary School, John W. Gaines Middle School, and Grant High School. I will appreciate your help in coordinating with the school principals on the timing for the survey. The surveys will be anonymous, so the privacy of the participants is not in question.

I plan to share the results of the survey with you and will be happy to answer any questions you may have concerning the study. Please initial the statement below and return that copy of the letter to me in the stamped envelope. Thanks for your help.

Sincerely,

[Signature]

Mr. Stensel has permission to proceed with his study.

[Signature]
Superintendent

[Date]
Dear Mr. Leggette:

I wish to conduct a survey of the teachers in three schools in your district. The survey will require very little time or effort on the parts of your principals and teachers. Supporting the study will cost your district nothing, and I will not ask for any privileged information. The purposes of the study are to delineate, analyze, and document the reasons that teachers avoid using computer technology and to make recommendations for developing computer literacy training programs for teachers.

The survey took about five minutes of each participant's time during the validation process. A copy of the instrument is enclosed for your examination. Please treat it as a sensitive document.

I will deliver packets containing the survey materials to each school and ask that the principal have the packets distributed for completion during the week after Labor Day. I will furnish a stamped, self-addressed envelope with each packet so the survey can be returned without further trouble to you.

Specifically, I am asking that you allow me to conduct the survey at Seventh Ward Elementary School, Walker Junior School, and Springfield High School. I will appreciate your help in coordinating with the school principals on the timing for the survey. The surveys will be anonymous, so the privacy of the participants is not in question.

I plan to share the results of the survey with you and will be happy to answer any questions you may have concerning the study. Please initial the statement below and return that copy of the letter to me in the stamped envelope. Thanks for your help.

Sincerely,

[Signature]

Mr. Stensel has permission to proceed with his study.

[Signature] date
August 12, 1982

Mr. S. T. Howell, Superintendent
Ouachita Parish School Board
Post Office Box 1642
Monroe, Louisiana 71201

Dear Mr. Howell:

I wish to conduct a survey of the teachers in three schools in your district. The survey will require very little time or effort on the part of your principals and teachers. Supporting the study will cost your district nothing, and I will not ask for any privileged information. The purposes of the study are to delineate, analyze, and document the reasons that teachers avoid using computer technology and to make recommendations for developing computer literacy training programs for teachers.

The survey took about five minutes of each participant’s time during the validation process. A copy of the instrument is enclosed for your examination. Please treat it as a sensitive document.

I will deliver packets containing the survey materials to each school and ask that the principal have the packets distributed for completion during the week after Labor Day. I will furnish a stamped, self-addressed envelope with each packet so the survey can be returned without further trouble to you.

Specifically, I am asking that you allow me to conduct the survey at Highland Elementary School, Ouachita Parish Junior High School, and Ouachita Parish High School. I will appreciate your help in coordinating with the school principals on the timing for the survey. The surveys will be anonymous, so the privacy of the participants is not in question.

I plan to share the results of the survey with you and will be happy to answer any questions you may have concerning the study. Please initial the statement below and return that copy of the letter to me in the stamped envelope. Thanks for your help.

Sincerely,

[Signature]

Mr. Stenzel has permission to proceed with his study.

[Signature] 8/16/82
Superintendent
Laroy C. Stennel, Jr.
Post Office Box 16074 - LSU Station
Baton Rouge, Louisiana 70893
(504) 388-1133

August 11, 1982

Mr. Paul W. Fournier, Superintendent
Terrebonne Parish School Board
Post Office Box 3097
Houma, Louisiana 70361

Dear Mr. Fournier:

I wish to conduct a survey of the teachers in three schools in your district. The survey will require very little time or effort on the parts of your principals and teachers. Supporting the study will cost your district nothing, and I will not ask for any privileged information.

The purpose of the study is to delineate, analyze, and document the reasons that teachers avoid using computer technology and make recommendations to be followed in developing computer literacy training programs for teachers. I am distributing a survey which I hope will be conducted during the week after Labor Day. The survey has taken about five minutes of each participant's time during the validation process. It will be furnished with a stamped, self-addressed envelope so it can be returned to me without further trouble to you. I will coordinate with the school principals on the timing for the survey.

Specifically, I am asking that you allow me to conduct the survey at Broadmoor Elementary School, Evergreen Junior High School, and H. L. Bourgeois High School. I also ask that you encourage the principal and teachers at the participating schools to complete and return the surveys. The surveys will be anonymous, so the privacy of the participants is not in question.

I plan to share the results of the survey with you and will be happy to answer any questions you may have concerning the study. Please initial the statement below and return that copy of the letter to me in the stamped envelope. Thanks for your help.

Sincerely,

[Signature]

Mr. Stennel has permission to proceed with the study as discussed in this letter.

[Signature]

Supervisor, Professional Personnel
August 12, 1982

Mr. Harry M. Campbell, Superintendent
Webster Parish School Board
Post Office Box 520
Minden, Louisiana 71055

Dear Mr. Campbell:

The study I mentioned in our telephone conversation will require very little time or effort on the parts of your principals and teachers. Supporting the study will cost your district nothing, and I will ask for no privileged information. The purposes of the study are to delineate, analyze, and document the reasons that teachers avoid using computer technology and to make recommendations for developing computer literacy training programs for teachers.

The survey took about five minutes of each participant's time during the validation process. A copy of the instrument is enclosed for your examination. Please treat it as a sensitive document.

I will deliver packets containing the survey materials to each school and ask the principal to have the packets distributed for completion during the week after Labor Day. I will furnish a stamped, self-addressed envelope with each packet so the survey can be returned without further trouble to you.

Specifically, I am asking that you allow me to conduct the survey at Dubberly Elementary School, Central Junior High School, and Sibley High School. I will appreciate your help in coordinating with the school principals on the timing for the survey. The surveys will be anonymous, so the privacy of the participants is not in question.

I plan to share the results of the survey with you and will be happy to answer any questions you may have concerning the study. Please initial the statement below and return that copy of the letter to me in the stamped envelope. Thanks for your help.

Sincerely,

Mr. Stensel has permission to proceed with his study.
APPENDIX D. LETTER TO TEACHERS
Dear Teacher:

I appreciate your taking time to complete this survey. Let me assure you that this is the only way to get the information needed and that I have made the survey as short as I can. So far, completing the survey has taken about five minutes of each teacher's time. Your responses are anonymous, and I promise that the survey will not infringe on your privacy in any way.

Computer technology is rapidly becoming a part of our existence, and several authorities in education believe that computers will be commonplace in school classrooms within a few years. Not all teachers agree that computer technology belongs in the classroom, and obstacles do exist. Regardless of your professional opinions about computers, your responses are most important. Information obtained in this survey will be useful in planning and establishing future programs.

I hope you will find time during the week after Labor Day to complete and mail the survey. Please try to return the survey to me by the first of October. I have provided a stamped, self-addressed envelope for the purpose. The postage on the envelope is sufficient for returning the survey. Please send only the survey and write your comments in Part Five on the back of the last page.

If you have any questions about this survey, please write or call. My home telephone number is (504) 383-8297. Thanks for your help.

Sincerely,

[Signature]
APPENDIX E. LETTER TO PRINCIPALS
Mr. xxxxx x. xxxxxxxxxx, Principal
xxxxxxxxxxxx xxxxxxx School
Route x, Box xxx
xxxx, Louisiana 7xxxx

Dear Mr. xxxxxxx:

I appreciate your assistance with this study. Let me assure you that this is the only way to get the information needed and that I have made the survey and procedures as short and simple as I can. So far, completing the survey has taken about five minutes of each teacher's time. Teacher responses are anonymous, so the survey will not infringe on their privacy in any way. Furthermore, the survey asks for no privileged information.

Computer technology is rapidly becoming a part of our existence, and several authorities in education believe that computers will be commonplace in school classrooms within a few years. Not all teachers agree that computer technology belongs in the classroom, and obstacles do exist. Responses from all your teachers are important, regardless of their professional opinions about computers. Information obtained in this survey will be useful in planning and establishing future programs.

Specifically, I am asking that you allow the survey to be conducted in your school, that you have a packet containing the survey distributed to each of your teachers, and that you encourage them to complete and return the surveys.

I plan to share the results of the survey with you and will be happy to answer any questions you may have concerning the study. My home telephone number is (504) 383-8297. Thanks for your help.

Sincerely,
APPENDIX F. STATISTICAL PROFILE OF DATA FROM THE SURVEY
Statistical Profile of Data from Survey

Part One. Teacher Opportunities and Experience with Computers.

1. Are computers or microcomputers used in your school?
   a. Not at all (or not that I know about).
   b. Yes, but only in the office for administration.
   c. Yes, but use is limited to specialized academic programs.
   d. Yes, their use is limited to specialized academic programs and administrative applications.
   e. Yes, they are broadly and freely used in a number of applications.

   A) 183/52.3% B) 21/6% C) 102/29.1% D) 38/10.9% E) 2/.1%

2. Is assistance available to the teachers in your school who want to learn about computers?
   a. No (or none that I know about).
   b. Yes, one of our math/science teachers has been assigned to help other teachers who are interested.
   c. Yes, we have had sessions as parts of our inservice program.
   d. Yes, a local computer or audiovisual company has given classes.
   e. Yes, but the assistance is from a source not mentioned.

   A) 307/87.7% B) 3/0.8% C) 5/1.4% D) 9/2.6% E) 23/6.6%

3. What is the depth of your experience with computers?
   a. I have not had the opportunity to use computers at all.
   b. I have not used computers but have taken elementary course(s) in some form of computer programming.
   c. I have used microcomputers (or large computers) to run ready-made programs, but I have little confidence in my ability to generate programs without help.
   d. I have used microcomputers (or large computers) and can write and run my own programs with minimal assistance.
   e. I consider myself a resource person with regard to computers and their use.

   A) 272/77.7% B) 29/8.3% C) 37/10.6% D) 10/1.9% E) 2/0.5%
4. In your opinion, what are the attitudes of your administrators toward the use of computer technology in your school?
   a. They are strongly opposed to the use of computers in schools.
   b. They have no feelings about computers as far as I can tell.
   c. They tend to accept the usefulness of computers but have some reservations.
   d. They want computers in the school for administrative purposes and/or for limited academic purposes only.
   e. They want to bring computer technology into all parts of the school as soon as they can.

A) 4/1.1% B) 141/40.3% C) 80/22.9% D) 62/17.7% E) 49/14%

Part Two. Teacher Professional Background and Teaching Experience.

1. The grade(s) you teach?
   a. Lower Elementary
   b. Upper Elementary
   c. Middle
   d. Junior High
   e. Senior High
   f. Combination

A) 50 B) 31 C) 7 D) 94 E) 158 F) 10

2. The subject(s) you are certified to teach? (indicate all appropriate areas.)
   a. Elementary certification
   b. Math
   c. Science
   d. English
   e. Foreign Language
   f. Social Studies
   g. Vocational Subjects or Business Education
   h. Other

Totals not meaningful because of multiple responses from many participants.
3. Your classroom use of television or video equipment?
   a. I would use it, but it is not available to me.
   b. I do not use it.
   c. seldom.
   d. frequent.
   e. daily.
   A) 119/34% B) 55/16% C) 89/26% D) 73/21.1% E) 10/2.9%

4. Your classroom use of learning games or simulations?
   a. I would use them, but they are not available to me.
   b. I do not use them.
   c. seldom.
   d. frequent.
   e. daily.
   A) 88/25.1 B) 57/16.3% C) 97/27.7% D) 85/24.2% E) 16/4.6%

5. Your classroom use of motion pictures or slide presentations?
   a. I would use them, but they are not available to me.
   b. I do not use them.
   c. seldom.
   d. frequent.
   e. daily.
   A) 23/6.6% B) 47/13.4% C) 135/38.6% D) 136/38.8% E) 3/0.9%

6. Your years of teaching experience?
   a. under 2 years.
   b. between 2 and 5 years.
   c. between 6 and 10 years.
   d. between 11 and 20 years.
   e. Over 20 years.
   A) 19/5.4% B) 57/16.3% C) 88/25.1% D) 132/37.7% E) 54/15.4%

7. Your highest degree?
   a. I have not yet completed baccalaureate studies.
   b. Bachelors.
   c. Masters.
   d. Ed.S. or Masters degree plus 30 semester hours.
   e. Doctoral degree.
   A) 1/0.3% B) 186/53.1% C) 90/25.7% D) 71/20.3% E) 2/0.7%
8. Do you have math, a science, or computer science as a major or minor field of study for any of your degrees?
   a. No.
   b. Yes.

A) 281/80.3% B) 69/19.7%

9. Do you have a hobby or other experience or training that may help you in working with computers?
   a. No.
   b. Yes.

A) 320/91.4% B) 30/8.6%

Part Three. Teacher age and Gender

1. Your age:
   a. under 25.
   b. 25-31.
   c. 32-39.
   d. 40-50.
   e. over 50.

A) 23/6.6% B) 64/18.3% C) 129/36.9% D) 101/28.9% E) 33/9.4%

2. Your gender:
   a. male.
   b. female.

A) 83/23.7% B) 267/76.3%

Part Four. Opinions of the Value of Computers in Education.

1. I see potential for computers as tools in education.
   SA) 126/36% A) 195/55.7% NO) 20/5.7% D) 8/2.3% SD) 1/0.3%

2. I am uneasy about having computers in our classrooms because of their potential for dehumanizing the learning environment.
   SA) 5/1.4% A) 50/14.3% NO) 58/16.6% D) 175/50% SD) 62/17.7%
SA) 4/1.1% A) 11/3.1% NO) 20/6% D) 108/30.6% SD) 207/59.2%

4. The importance and impact of computers on education have been overstated.
SA) 8/2.3% A) 62/17.7% NO) 134/38% D) 114/32.6% SD) 33/9.4%

5. Most teachers need some understanding of computers even if the knowledge is limited to running prepackaged programs.
SA) 27/22% A) 209/59.7% NO) 35/10% D) 25/7.1% SD) 4/1.1%

6. The usefulness of computers and microcomputers in education is limited to math, science, and teaching about computing.
SA) 0/0% A) 29/8.3% NO) 67/19.1% D) 185/52.9% SD) 70/20%

7. I believe computers or microcomputers will find a place in my field of teaching.
SA) 90/25.7% A) 175/50% NO) 49/14% D) 30/8.6% SD) 6/1.7%

8. Although microcomputers are simpler than the large computers, they are still too complex to be practical as classroom assets.
SA) 2/0.6% A) 35/10% NO) 110/31.4% D) 55/44.3% SD) 48/13.7%

9. I would welcome a computer that could give me more time to spend in actual teaching duties, and I would take the time to learn to use it.
SA) 108/30.9% A) 187/53.5% NO) 42/12% D) 10/2.7% SD) 3/0.9%
Part Four Continued. Ways teachers may learn to use computers.

10. There should be some special incentive program for teachers who are willing to learn about computers.

SA) 91/26% A) 186/53.1% NO) 43/12% D) 24/6.9% SD) 7/2%

11. I am interested in what computers can do for me, but I am not interested in learning to be a computer programmer, even on a small scale.

SA) 19/5.6% A) 124/35.5% NO) 50/14% D) 127/36% SD) 30/8.9%

12. If I were to learn to use computers or microcomputers, I would want to learn at my own pace without having to keep up with a class or formal course.

SA) 39/11.1% A) 182/52% NO) 60/17.1% D) 65/18.6% SD) 5/1.4%

13. If I were to learn to use computers or microcomputers, I would want to learn with the equipment and program materials I would be using in my job.

SA) 110/31.4% A) 220/62.4% NO) 17/4.6% D) 3/0.9% SD) 1/0.3%

14. I would be more willing to take my time to learn about more computers if I could be shown that the programs I would be using really work and that they would help me do my job.

SA) 122/34.8% A) 205/58.6% NO) 17/4.6% D) 5/1.4% SD) 2/0.6%
VITA

Leroy George Stenzel, Jr. was born on December 9, 1943 in Houston, Texas and was raised in the Houston Heights. He attended schools of the Houston Independent School District. He worked while attending the University of Houston and graduated in January, 1969 with a Bachelor of Science degree in Political Science.

He began active duty with the United States Army in March, 1969 and served as an instructor at the U. S. Army Southeastern Signal School and at the U. S. Army Field Artillery School. He attended flight training in 1971 then served in Vietnam in 1972. In 1973 he was assigned to First Infantry Division at Fort Riley, Kansas where he served as a company commander then as a brigade signal officer. Beside his normal duties at Fort Riley, he completed work at Kansas State University for a Master of Science degree in Adult and Occupational Education. In 1976, he was assigned to Korea to serve in an aviation unit.

After returning from Korea in 1978, he came to Louisiana State University to serve as an Assistant Professor of Military Science. He was promoted to Major in February, 1980 and continued at LSU until May, 1981 when he left active duty to complete the Doctoral Program.
EXAMINATION AND THESIS REPORT

Candidate: Leroy George Stenzel, Jr.

Major Field: Education

Title of Thesis: Teacher Attitudes Toward Computer Literacy

Approved:

[Signatures of Major Professor and Chairman, Dean of the Graduate School]

EXAMINING COMMITTEE:

[Sister Marie L. Carson
Eric L. Thurston
Pauline M. Rankin
Charlie W. Rhyolt
Carol Cox]

Date of Examination:

November 16, 1982