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## An analysis of teachers' attitudes toward computers as a teaching tool

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AN ANALYSIS OF  
TEACHERS' ATTITUDES  
TOWARD COMPUTERS AS  
A TEACHING TOOL

MASTER'S PROJECT

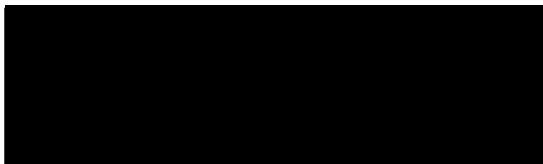
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Master of Science in Education

by

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approved by:



Official Advisor

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My husband, Bobby, whose love and patience enabled me to get it done when circumstances would have otherwise prohibited it.

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My Mam-ma Bolen who loved me unconditionally.

My Mam-ma Casto who made her home mine.

My "greatest" aunt, Feedy, who has always been there for me and has always encouraged me to continue my education.

My brother, Tim, whose always taken care of his little sister.

My nephew, Jonathan, who has brightened up my life immeasurably.

## DEDICATION

I dedicate this project in the memory of my Mommy,  
Pap-pa Bolen, and Pap-pa Casto. I wish you were here  
with us.

## PART I

### INTRODUCTION TO THE PROBLEM

#### Review of Literature

During the past decade, computer technology has taken society to new heights of organization and efficiency. As the computer has become an integral part of the business sector, however, it has met with some resistance in the schools.

This resistance to the new technology has been baffling since most people agree that the computer is now a permanent part of today's world. Recognizing that today's teachers are preparing students for this new technologically-advanced world presents quite a challenge for teachers. Teacher attitudes about computers in the classroom fall anywhere from extremely positive to extremely negative. Researchers indicate that teachers have a variety of reasons for their attitudes toward the computer as a teaching tool in today's classroom.



Types of computer-assisted instruction available to the classroom teacher. There are many ways to use the computer as an instructional tool in today's classroom. One type of computer-assisted instruction available to the teacher is drill and practice. According to McCormick (1987), drill and practice can be used to reinforce basic skills and strategies through independent practice. This form of instruction is the most widely used by educators. It supplies the teacher with an instrument by which the student can hone his basic skills on an independent and individual basis.

Another type of computer-assisted instruction available to today's teachers is instructional games. Instructional games are designed to provide drill and practice in a more interesting and fun manner. (McCormick, 1987) This type of computer usage presents the basic skills or concepts in the form of a game, maze, or some other interesting medium. While providing the drill and practice, it allows students to learn the skill through a different modality. Many of these games can be experienced by individuals, in pairs, or even in small groups. Since these games are

usually a student's preference, they can be used as a motivator or in a reward system.

A third type of computer-assisted instruction used in today's classroom is tutorial experiences. Tutorial experiences provide more instruction than drill and practice programs through detailed explanations of how to accomplish a task. (McCormick, 1987) These tutorial experiences can actually "teach" a lesson to a student without the teacher being around. Tutorial programs are an excellent source of one-on-one instruction when large enrollments prevent sufficient student/teacher interaction. They are useful to a teacher with many levels of achievement in one room also. The tutorials can help remedial students by giving them a different approach and allowing them to move at their own pace. Gifted students can move on to higher level activities and enrichment opportunities not normally available. The average student will also have opportunities to either accelerate or go back for periodic remediation.

Simulation is another type of computer-assisted instruction being used. According to McCormick (1987), simulation learning is designed to simulate real

experiences and allow students to role-play hypothetical situations. Simulation packages are most widely used by science teachers but still rank as one of the least-used types of computer-assisted instruction. (Dickey, 1987)

Finally, programs for instructional management are available to teachers. Programs for instructional management help teachers track student progress, monitor tasks as they are accomplished, and indicate when intervention is required. (McCormick, 1987)

Classrooms that are managed by a computer are constantly being monitored for progress or regression. These systems can give teachers an overview of the class, the average of a reading group, or the progress of an individual at a glance. While these programs require training and organization, they can be very useful in many situations.

There are many different types of computer-assisted instruction available to the classroom teacher. The use of this technology as a teaching tool is looked upon favorably by some teachers and not so favorably by others.

Teachers' positive attitudes toward computers in the classroom. One positive attitude that is developing is the one of acceptance of the computer as a constructive instructional tool. D'Souza (1985) stated that many teachers are beginning to see the computer as a useful tool in designing instructional activities, adapting existing materials and activities, and providing a variety of resources to individualize course content.

A second positive attitude being exhibited towards computers as a teaching tool is that teachers no longer fear them. Computers are no longer specialized tools and they are becoming easier to understand and use.

(Woodrow, 1987) As computers have become more powerful and miniaturized, many have also become easier to operate and incorporate into the classroom.

(Hannafin, 1987) Educators are beginning to feel better about the computer once they have been trained and have seen for themselves that the newer models are easier to master.

The increased availability of computer equipment to the classroom teacher has created a positive attitude towards the computer as a teaching tool.

Teachers are beginning to realize that the smaller number of students and the greater number of microcomputers has permitted greater access time which in turn has created a more positive, motivated atmosphere for learning. (Harmon, 1986) The sheer number of computer-type equipment that students and teachers come in contact with during everyday life has made teachers realize the importance of including computers as one of their teaching tools.

This researcher has found that many teachers have positive attitudes toward the use of the computer as an instructional tool. Even where there exists some skepticism, there is an underlying desire by teachers to be able to use the computer as a part of their daily classroom instruction. Unfortunately, there are still some teachers who have a negative attitude towards the computer as a teaching tool.

Teachers' negative attitudes toward computers in the classroom. One reason teachers have negative attitudes toward using computers in the classroom is because many do not receive instruction themselves. The small percentage of teachers receiving instruction could explain why approximately half of the teachers

with access to computers do not use them. (Dickey, 1987)

Harmon (1986) reported that ninety-eight percent of the respondents would like to learn more about computers and seventy-nine percent would like to take a computer course. Most teachers, however, are not offered adequate training before a computer is placed in their classroom. This lack of background knowledge creates attitudes ranging from apathetic to hostile. (Harmon, 1986)

Another reason teachers have cited as contributing to their negative attitudes toward computers is that there is not enough time available to use the computer effectively. Teachers fear that the individualization associated with computer-assisted instruction will require too much time for too few students. (Vernot, 1987)

Hannafin (1987) stated that many innovations fail to gain acceptance in the schools because they simply add to the load of an already overburdened teacher. Hannafin (1987) continued by saying that if the computer must be taught as yet another curriculum area, we should not "add" it to the curriculum, but infuse it

into normal routines by capitalizing on the computer's unique capabilities.

Another reason teachers exhibit negative attitudes toward computers is that they are concerned about the lack of budgetary support. Budgetary support is essential to implementing and maintaining an effective program. Several issues such as software availability and maintenance allowances are major concerns for teachers. (Vernot, 1987)

While computers are becoming more available in almost all school districts, they can not be used efficiently if they are not coupled with appropriate and manageable software. Marshall (1987) foresaw problems with keeping up with the growing amount of software coming on the market. Teachers need to view a wide variety of programs and choose what is appropriate for their classroom. Of course, once chosen, it must be purchased from some tight school budgets. Teachers worry that they may have the computer, but no software to make a program beneficial to the students.

Also, maintenance costs must be included in the budget to allow for general maintenance as well as repairs. Vernot (1987) emphasizes that computers, like

any piece of equipment, will need periodic care and occasional repair. Teachers fear that the computers will not receive priority and, therefore, may not receive proper care. Ultimately, they see their computer-oriented programs becoming unusable.

In summary, the researcher recognizes that there are many uses for the computer as a teaching tool. It must also be acknowledged that teachers have a variety of attitudes toward the computer as a teaching tool. Also, there exists many reasons why these teachers have these attitudes. These attitudes must be examined and used to accelerate the acceptance of the computer as a teaching tool.

If educators can accentuate the positive and alleviate the negative, the transition to this higher technology will be smooth and effective.

#### Justification of the Problem

After reviewing the literature, the researcher concluded that the computer is becoming an integral part of most school curriculums. Even though the use of the computer is gaining an acceptance as an



important teaching tool, many teachers still resist its use.

Because of this, the researcher has studied both the positive and negative attitudes that a sample of teachers have toward the use of the computer as a teaching tool.

This researcher believes that the attitudes of teachers toward the use of the computer in the classroom must be identified and analyzed. This is necessary since students are capable of learning attitudes based on the beliefs of the teacher.

#### Problem Statement

The purpose of this study was to analyze the attitudes of teachers toward using computers as a teaching tool.

## PART II

### PROCEDURES

#### Subjects

The researcher surveyed the teachers employed at a small elementary school, kindergarten through eighth, in southern Ohio. The twenty one teachers surveyed have an average of fifteen years of teaching experience. All of the teachers surveyed have completed some post graduate education. Fifteen female subjects and six male subjects took part in the survey.

#### Setting

School. The school is in a rural county system which has four small high schools housing grades nine through twelve and six elementary schools housing grades kindergarten through eight. The system has its schools scattered throughout the county's rolling hills and small towns.

The elementary school surveyed is located in the north central part of the county. As one of the largest elementary schools, it has an enrollment of

nearly 500 students in grades kindergarten through eight. There are special classes available for the developmentally handicapped and multiply impaired students. Remedial reading and mathematics classes are also available on the premises. Behavior disorder and learning disability students are transported to other schools within the county. This school also takes the majority of the children housed at the county Children's Home and resident counseling center. The school has a 26.8 teacher/pupil ratio. The building itself is only three years old.

Community. The community is located in rural, southern Ohio. The county sits on the Ohio River directly across from West Virginia. Major industries include agriculture; meat packing and processing; manufacturing of small motors and engines; sand and gravel dredging; and one of the world's largest generating power plants. The community also has excellent medical facilities, libraries, recreational facilities, churches, and schools. There is a small community college and private college that offers two and four year programs. Recently, a university has made available a master's program at the local campus.

## Data Collection

Construction of Questionnaire. The Likert-style questionnaire was constructed after reviewing many articles and textbooks about attitudinal surveys. The particular style and questions were patterned after the work of Abdel-Gaid (1986) and his report which appeared in the Journal of Research in Science Teaching. The questionnaire was reviewed by several colleagues, one administrator, and a computer expert. The questionnaire was field tested by three teachers employed in another district.

Administration of Questionnaire. The questionnaire was hand delivered to each teacher with a request to return it the next day by putting it in a school mailbox. Since all the teachers were in the same building, there was a high return rate of 100 percent.

## Definition of Terms

attitude--a feeling or emotion toward a fact or state (Webster's, 1979)

computer--an electronic machine that can store and follow instructions. The hardware of a computer consists of a central processing unit, memory for storing instructions and data, and some means of input and output (Hoffman, 1983)

computer-assisted instruction--(CAI) instruction in which computers play a role (Wittich, 1979)

microcomputer--a computer whose CPU (central processing unit) is a microprocessor. A microcomputer includes microprocessor, memory, and input/output controllers (Hoffman, 1983)

#### Assumptions

This researcher assumes that the survey questions are valid, the subjects were honest, and the sample was representative of the general teaching profession.

#### Limitations

One factor which may affect internal validity was the small sample size. Other factors which may affect internal validity include the fact that the teachers are from the same region and all the teachers are elementary teachers.

## PART III

### RESULTS

#### Presentation of Results

Refer to Table I. Note that the questions from the study are in the first column. Following are the responses to each question for each of the following categories: strongly agree, agree, undecided, disagree and strongly disagree. All numbers are expressed as percents.

Fifty-two percent of the teachers indicated that they disagreed or strongly disagreed that computers are as important to the teacher as textbooks. Twenty-four percent were undecided.

Fifty-seven percent of the teachers disagreed or strongly disagreed that supplying every student with a computer is a worthy educational objective. Thirty-six percent agreed that it was a worthy educational objective.

Sixty-seven percent of the teachers agreed or strongly agreed that a computer is an easy instructional tool for a teacher to implement in the classroom. Nineteen percent of the teachers disagreed.

Eighty-one percent of the teachers disagreed or strongly disagreed that teachers are given adequate instruction prior to the installation of the computer in the classroom.

Seventy-one percent of the teachers agreed or strongly agreed that we should reorganize our educational curricula so that it allows for students to gain a basic operational understanding of the computer. Twenty-four percent were undecided.

Seventy-two percent of the teachers disagreed or strongly disagreed that teachers can readily get the necessary materials needed to develop constructive lessons using the computer as a teaching tool.

Fifty-seven percent of the teachers agreed or strongly agreed that basic computer literacy should be a graduation requirement for students. Twenty-four percent were undecided and nineteen percent disagreed.

Ninety-five percent of the teachers agreed or strongly agreed that teachers should demand that they be taught how to use the computer as a teaching tool before they are placed in the classroom.

Seventy-six percent of the teachers disagreed or strongly disagreed that the school system provides teachers with appropriate computer equipment.

Eighty percent of the teachers agreed or strongly agreed that computers are an excellent addition to the teacher's instructional resources.

The percentages mentioned above show the major categories or the categories in which there is a strong attitude illustrated by the group surveyed.

#### Discussion of Results

The results from this questionnaire compare favorably with the results of other researchers and the researcher's personal experience concerning the computer as a teaching tool.

As a teaching tool, computers are not considered as important as textbooks, but many teachers believe



that supplying students with computers is a worthy educational objective. This attitude seems to illustrate that teachers are beginning to accept the computer as an inevitable part of society and eventually their classrooms. There is, of course, a desire to stick to the traditional forms of instruction.

With eighty percent of the teachers questioned agreeing or strongly agreeing that computers are an excellent instructional resource and sixty-seven percent agreeing or strongly agreeing that computers are easy to implement in the classroom, there seems to be a strong feeling that the computer would be a nice addition to a teacher's resources. Woodrow (1987) also reported that seventy-two percent of the teachers surveyed agreed or strongly agreed with the statement: "Computers can be a useful instructional aid in almost all subject areas". This researcher believes that most teachers are expressing a desire to have the computer as an instructional resource to be used at their discretion.

It seems that as teachers have become more aware of the computers' capabilities and advantages in the

classroom, they are beginning to view it more favorably. The researcher believes that the recent evolution of the computer has transformed it into a much smaller and less complicated instrument which in turn has made teachers less fearful of it. Woodrow (1987) reported similar findings; forty-four percent of the teachers surveyed indicated that they felt at ease around computers and seventy-seven percent indicated that they disagreed or strongly disagreed that they felt uncomfortable when a conversation turned to computers.

There are, however, thirty-six percent who are either undecided or disagree with the others; they do not feel the computer is an easy instructional tool to implement. Again, Woodrow (1987) revealed that many teachers still felt uncomfortable or undecided about the computer in general. These teachers may have had bad experiences with a computer in the past, feel uncomfortable using the computer, or simply are resistant to the "change". The twenty percent who feel computers are not a good addition to a teacher's resources may have also experienced some of the same things.

The teachers did seem to favor the idea of allowing students to gain a basic operational understanding of the computer as part of the school curriculum. Woodrow (1987) agreed and reported that up to ninety-six percent of teachers indicate that high school students should have some understanding of computers, and sixty-two percent agreed that a high school student should be able to write a simple computer program. This researcher found that the teachers surveyed also agreed with the notion of computer literacy as a graduation requirement. Still, there were almost a quarter of the respondents that were undecided about both ideas.

Once again, this appears to illustrate that the teachers are conceding that the students that leave their classrooms really need to be knowledgeable of the computer. The researcher believes that most of today's teachers were educated prior to the "computer age" and do not feel competent. They do, however, want their students to have the advantage of being prepared for the future which will inevitably include computers. Woodrow (1987) reported that one hundred percent of the teachers surveyed agreed or strongly agreed that high school students should have some understanding about

the role computers play in society. The teachers that are still undecided on these issues may have either not had enough exposure to the computer to make a decision, or they are resisting the "change".

Some of the strongest feelings were voiced about whether or not teachers were properly instructed on how to operate the computers. While ninety-five percent said they should demand to be taught how to use the computer, over eighty-one percent said they were not given adequate instruction. This researcher notes a large discrepancy in what the teachers want and what they are getting. It appears that many teachers are getting these computers and are expected to use them effectively without any formal training. If they feel uncomfortable during its implementation, they will not view it as favorably as if they had been properly prepared.

Almost all previously reported studies agree with this researcher's findings concerning the lack of teacher instruction prior to the installation of the computers into the classroom. Woodrow (1987) reported that seventy-eight percent of the teachers surveyed indicated that their training did not adequately equip

them to make decisions about using computers while eighty-six percent of the same teachers indicated that they would like to receive further training in computers. Also, Woodrow (1987) stated that eighty-nine percent of teachers agreed or strongly agreed that teacher training should include instructional applications of computers.

Another point which revealed strong feelings was that teachers felt the school systems did not support and supply the computer programs once they were implemented. Almost three quarters of the teachers surveyed disagreed or strongly disagreed that they were given adequate equipment or the necessary materials to develop constructive lessons.

The researcher believes this is due to administrators and teachers being unprepared to become involved in such a new and highly technical program. The school systems do not realize how much is involved with training the personnel, procuring appropriate software, setting up maintenance and repair allowances, and employing a computer coordinator to oversee the program. Marshall (1987) discussed many of these training/equipment imbalances and suggests that school

systems need to spend up to one-third of their computer budget on training. Marshall (1987) concluded that schools will find themselves with sophisticated technology and unsophisticated teachers unless all the aspects of a computer program are addressed properly.

Also, budgetary difficulties are commonplace in many schools today. Computer programs are expensive to implement and maintain.

The hunt for appropriate and effective software is endless. Many teachers do not have access to a large quantity of software that they can preview and make decisions on whether it is appropriate for their class. Vernot (1987) reported that it is virtually impossible to keep up with all the software available but makes suggestions on how to find and purchase a few good pieces; this includes buying on approval, consulting educational journals and colleagues, and sticking to publishers that have been successful in the past.

Overall, teachers seem to be favoring the computer in their classrooms as long as they are prepared and maintained at levels that will make the programs worthwhile to them and their students. Unfortunately, the survey indicated that most of the teachers surveyed

did not feel prepared or supported in their efforts to use the computer.

Table 1  
 RESPONSES OF TWENTY ONE TEACHERS EXPRESSED  
 IN PERCENTS TO HOW THEY FEEL ABOUT THE  
 COMPUTER AS A TEACHING TOOL

Statement	Teachers' Responses				
	SA	A	U	D	SD
1. As a teaching tool, computers are as important to the teacher as textbooks.	5	19	24	33	19
2. Supplying every student with a computer is a worthy educational objective.	14	24	5	47	10
3. Computers are an easy instructional tool for a teacher to implement in the classroom.	10	57	14	19	0
4. Teachers are given adequate instruction prior to installation of the computer in their classroom.	0	5	14	43	38
5. We should reorganize our educational curricula so that it allows for students to gain a basic operational understanding of the computer.	28	43	24	5	0
6. Teachers can readily get the necessary materials needed to develop constructive lessons using the computer as a teaching tool.	0	14	14	53	19
7. Basic computer literacy should be a graduation requirement for students.	19	38	24	19	0
8. Teachers should demand that they be taught how to use the computers as a teaching tool before they are placed in the classroom.	38	57	0	5	0
9. The school system provides teachers with appropriate computer equipment.	0	14	10	52	24
10. Computers are an excellent addition to a teacher's instructional resources.	33	47	10	5	5



## PART IV

### SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

#### Summary

Researchers have reported that most teachers recognize the importance and potential of the computer as a teaching tool. The teachers also support computer literacy among their students.

Teachers, however, feel they are not properly prepared to use this new technology; they feel uneasy implementing the computer into their teaching without the proper training. Also, there are budgetary concerns that make teachers apprehensive about computer programs.

The purpose of this study was to analyze the attitudes of teachers toward using computers as a teaching tool.

A Likert-style attitude questionnaire consisting of ten statements about computers was given to a group of twenty one elementary school teachers. Their

responses were collected and tabulated. The results were presented in the form of a table.

The results of this survey compare closely with the results published by previous researchers. It appears the teachers surveyed have indicated an acceptance of the computer as a teaching tool but still have reservations about it becoming "the" tool for their classroom. They did, however, recognize the need for both students and teachers to develop computer literacy.

#### Conclusions

The researcher concludes that the computer is being accepted as an instructional tool. More and more teachers are beginning to recognize its usefulness and are implementing it into their classroom. Also, the researcher must conclude that there are several obstacles that must be overcome to make the computer effective in the classroom. Teachers must be properly trained, and school systems must accept the responsibility to support and maintain the programs once implemented.

## Recommendations

The researcher would like to recommend that computer education be made available to teachers. There is an urgent need to educate teachers through teacher inservices, computer workshops, stipened computer courses, or company sponsored seminars.

Secondly, the researcher would like to recommend that school systems continue to expand and update their computer programs.

Finally, the researcher would like to recommend that the attitudes of teachers toward computers as a teaching tool be studied further to determine if a shift in attitudes has taken place.

Appendix

## Computer Attitude Questionnaire

Directions: Read each statement. Circle the response that most accurately reflects your attitude toward the statement. The responses are SA=Strongly Agree, A=Agree, U=Undecided, D=Disagree, and SD=Strongly Disagree.

1. As a teaching tool, computers are as important to the teacher as textbooks. SA A U D SD
2. Supplying every student with a computer is a worthy educational objective. SA A U D SD
3. Computers are an easy instructional tool for a teacher to implement in the classroom. SA A U D SD
4. Teachers are given adequate instruction prior to installation of the computer in their classroom. SA A U D SD
5. We should reorganize our educational curricula so that it allows for students to gain a basic operational understanding of the computer. SA A U D SD
6. Teachers can readily get the necessary materials needed to develop constructive lessons using the computer as a teaching tool. SA A U D SD
7. Basic computer literacy should be a graduation requirement for students. SA A U D SD
8. Teachers should demand that they be taught how to use the computers as a teaching tool before they are placed in the classrooms. SA A U D SD
9. The school system provides teachers with appropriate computer equipment. SA A U D SD
10. Computers are an excellent addition to a teacher's instructional resources. SA A U D SD

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