A NEEDS ASSESSMENT OF MICROCOMPUTERS IN VOCATIONAL

AGRICULTURE CLASSROOMS AS PERCEIVED BY SELECTED

OKLAHOMA VOCATIONAL AGRICULTURE TEACHERS

AND SUPERINTENDENTS

By

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CHAPTER I

INTRODUCTION

The United States is currently involved in a unique type of
revolution. This revolution involves the use of such technical de-
vices as microprocessors, large scale integrated circuits, hardware,
software and disk operating systems. These devices are used for the
purpose of processing and storing large amounts of data quickly, ac-
curately and efficiently. This revolution is called the "Computer
Revolution".

Advancements made in computer technology have been phenomenal
since the discovery of the "transistor" in the late 1950's. These
advancements have been especially noticeable in the area of micro-
computers. They are smaller, faster, more accurate and quickly finding
their way into many businesses, schools, homes and family farms. The
potential applications for the microcomputer are virtually unlimited
through the use of various software programs and telecommunication
systems. The first microcomputer was offered for sale in the market
place in 1977. Since then, the microcomputer has been a highly sought
after management tool.

Due to the widespread acceptance and use of the microcomputer in
business and industry, it has become necessary for the nation's schools
to increase computer literacy among today's students. In 1968,
"Education U.S.A." reported that any student who does not receive some

background in computer technology during his/her career is getting a second-class education. Today, many school administrators and teachers have incorporated microcomputers into their student learning programs for the purpose of providing a quality education. Vocational Agriculture (VO AG) is certainly no exception. Many Vocational Agriculture teachers are recognizing the importance of computer technology to the agricultural industry and are placing microcomputers in their departments for student use. Bristol (1) stated that computer instruction is no longer a matter of quality education, but rather an issue as basic as literacy.

Computer technology and microcomputer usage are increasing at accelerating rates in the United States. It is for this reason, high school and college graduates will need to possess a certain amount of computer knowledge and skills in order to find a contributory place in today's changing society.

Statement of the Problem

Little information was found that specifically dealt with the perceptions of superintendents and Vocational Agriculture teachers concerning microcomputer use in public school and the Vocational Agriculture classroom. Furthermore, few, if any, studies in the state at the present time have addressed this problem. These voids need to be filled as the importance and need for microcomputers in agriculture and education continues to grow. Hopefully, this study will provide information that will assist superintendents and Vocational Agriculture teachers in planning and improving computer programs availability and use in schools and possibly initiate and/or encourage opportunities.

Purpose of the Study

An effort to determine teacher and administrator perceptions regarding present use and availability of microcomputer programs would provide insight as to future needs of Vocational Agriculture students and programs. The purpose of this study was to assess the need and/or use of microcomputers in Vocational Agriculture classrooms as perceived by selected Oklahoma Vocational Agriculture teachers. An additional purpose of the study was to determine the degree of emphasis or importance of microcomputer usage in the classroom as perceived by selected superintendents.

Objectives of the Study

In order to accomplish the purpose of this study, the following objectives were organized:

1. To characterize the typical Vocational Agriculture teacher respondent as to age, experience, tenure, etc.

2. To determine the perceptions of Vocational Agriculture teachers with regard to the need of microcomputers in the Vocational Agriculture program.

3. To determine the perceptions of Vocational Agriculture teachers with regard to use of microcomputers in the Vocational Agriculture program.

4. To determine the importance or emphasis of microcomputer usage relative to the high school educational program as perceived by the school superintendent.

5. To determine the importance, emphasis or value of microcomputer usage relative to the Vocational Agriculture program as perceived by the school superintendent.

Definition of Terms

For a better understanding of facts presented in this study, the following terms were identified:

1. Microcomputer – An electronic computing device that performs high speed computations with great accuracy. Consists of a keyboard similar to a typewriter for data entry and a cathode ray tube or television set for viewing data inputted or outputted.

2. Floppy disk – A disk made of flexible plastic. The microcomputer stores information and programs on this disk.

3. Software – Computer programs that are usually stored on floppy disks or cassette tapes that cause the computer to perform certain functions.

4. Modem – A device that allows for a telephone to be connected to the microcomputer for the purpose of sending and receiving messages.

5. Microprocessor – A device inside the microcomputer which is contained in a single integrated circuit. This is the device that allows the microcomputer to do the actual computing.

6. Peripheral Device – Devices such as disk drives, cathode ray tubes, printers and modems which are connected to and interact with the microcomputer.

7. Disk Drive – A peripheral device that writes and reads information on the surface of a floppy disk.

8. Disk Operating System – An optional software system that enables the computer to control and communicate with one or more disk drives.

9. Vocational Agriculture (Vo Ag) - A course or series of courses which is usually taught at a public high school to grades 9 - 12. It involves a thorough study of the field of agriculture and teaches students agricultural applications with the hope they will find employment in the agricultural industry.

10. Vocational Agriculture Teacher - The public high school faculty member which instructs high school students in the field of agriculture.

11. School Superintendent - The individual which is the head of a particular school system and is responsible for administering policies affecting the local school.

Assumptions

The following assumptions were made about this study:

1. That each Vocational Agriculture teacher and superintendent selected were representative of other Vocational Agriculture teachers and superintendents.

2. That each Vocational Agriculture teacher and superintendent selected had some prior exposure to microcomputers.

3. That the responses indicated were their own honest expressions and opinions.

Scope of the Study

The study involved 156 randomly selected Vocational Agriculture teachers and 156 select superintendents. Of the 156 teachers, 23 were from multiple teacher departments and 133 from single teacher departments. The distribution of state teachers and superintendents consisted of

31 from the Northwest District, 20 from the Southwest District, 15 from the South Central District, 25 from the North Central District, 32 from the Northeast District and 33 from the Southeast District. The number of superintendents in each district was the same as the number of teachers, as the superintendents were selected to correspond with the randomly selected teachers.

Mailed questionnaires were sent to the selected teachers and their superintendents. The questions included in the 23 item Vocational Agriculture teacher survey were classified as closed form. The superintendent survey included eight items pertaining to program emphasis on a Likert-type scale.

CHAPTER II

REVIEW OF LITERATURE

This chapter's purpose was to present the reader an overview of literature which was related to the use of microcomputers in education and agriculture. The presentation of this background information was divided into four major areas and a summary. The areas of concern were the microcomputer as a tool in classroom instruction, the microcomputer as a tool in the agricultural industry, software for the microcomputer and teacher inservice training and adult education for microcomputer usage.

The Microcomputer as a Tool in

Classroom Instruction

The microcomputer has virtually touched every aspect of today's society, even the area of education. Leising (12) stated that education has been slow to implement this new technology because of an intimidation factor. He believed that many school administrators and teachers were not using microcomputers in their school systems because they felt intimidated by the machines.

Camp (3) indicated that the major reason for schools not incorporating microcomputers into their educational systems has not been due to an intimidation factor but rather a cost factor. The average cost of a microcomputer has significantly decreased in recent years. This

cost reduction has been attributed to the rapid increase of computer technology. For this reason, more and more microcomputers are becoming available to school systems with limited funds. Predictions have been made that in 1985 the average high school will have 16 or more micro-computers.

According to Bristol (1) a major issue a school system faces is not whether it can afford to provide microcomputers for their students, but if it can afford not to.

Goor, Melmed and Farris (10) asserted that school districts through-out the nation are using computers for numerous instructional pur-poses. The most frequently used are introduction to computer concepts, learning enrichment in certain subject areas and challenge for high achievers.

Railsback (16) maintained that many administrators of school dis-tricts make mistakes in incorporating new technologies such as micro-computers in their school districts. These mistakes can eventually lead to their overall failure in the system. According to Railsback (16) some of the most common administrative mistakes are:

1. Treating the change as magic.
2. Rushing to gain publicity without proper planning for imple-mentation.
3. Making the change with no prior discussion with staff and teachers.
4. Purchasing equipment without knowing exactly how it will be used (pp. 118-119).

One area of education that is finding much use and success with the computer is Agricultural Education. Eighmy (5) stated:

> The use of computers in agriculture is increasing at an
> accelerating rate. Agricultural educators, who previously
> chosen to place computer literacy low on their list of
> priorities, have become interested in computers and their
> application to agriculture and agriculture education. In
> short, for day-to-day educational use, the microcomputer
> provides the most accessibility for faculty and students
> (p. 7).

Harmon (11) indicated that by teaching agricultural students how to use microcomputers and to write programs, the software problem in agriculture could partially be eliminated. This would allow agricultural students to better communicate agricultural needs to computer specialists for the purpose of software development.

Farm management courses have found much use for the computer as an aid in student instruction. Eighmy and Fuller (6) stated:

> Computers have been found to be effective tools to
> motivate and stimulate students enrolled in farm
> management. Students feel the planning process
> becomes easier and more interesting. Once they have
> collected accurate data, the projections and analyses
> the computer provides for them are more reliable and
> provide a more accurate picture of what may happen in
> in the farm business when the plan is implemented
> (p. 19).

Nelson (15) asserted that the microcomputer should be viewed and used in the same way as guest lecturers, overhead projectors, television, slide presentations, tours and farm visits are used in agricultural instruction.

Foster (7) maintained that Vocational Agriculture programs have accepted the responsibility of training students for careers in production agriculture and agribusiness. The agricultural industry has become highly technical, partly due to the increase of computer technology. Vocational Agriculture instructors must now become deeply involved in teaching students the uses and capabilities in agriculture.

More and more Vocational Agriculture departments are purchasing microcomputers for their students, but still many agriculture teachers are reluctant to use them. Gille (9) stated that the agricultural industry is rapidly changing; therefore, Agricultural Education must keep pace with these changes. To do so, Vocational Agriculture instructors will have to learn how to use microcomputers in order to provide their students adequate computer training.

The microcomputer has quickly become a highly sought after decision-making tool in almost every aspect of business, industry and education. Walker (21) stated that microcomputers are an exciting and useful resource in education but have some distinct limitations. According to Walker (21) these limitations are:

1. Microcomputers can not substitute for conventional education; however, they can supplement it.
2. Microcomputers are hard to use and teachers who can use them are in short supply.
3. New products and systems are being created and marketed in such profusion, with such speed and with so little standardization the systematic, long-term planning is nearly impossible.
4. Good programs are scarce because creating them is difficult, time consuming and expensive (p. 105).

The Microcomputer as a Tool in the

Agricultural Industry

Camp (3) indicated that all across the nation, farmers and ranchers are buying and learning to use microcomputers. In some areas the microcomputer is being used to automate irrigation systems, feeding systems, milking operations and countless other operations unique to the agricultural industry.

The applications for the microcomputer in agriculture are virtually unlimited. Eighmy and Fuller (6) stated that a microcomputer has the capability to keep day-to-day records and accounts and serve as an electronic file cabinet for keeping crop and livestock information.

Foster (7) believed the best use for a microcomputer in agriculture was for making day-to-day decisions. An excellent use for the microcomputer would be to keep and analyze labor/payroll records or maintain depreciation schedules for farm equipment.

There are many applications for the microcomputer in agriculture. According to Sowell (18) some of these applications are:

1. Record keeping (financial, animal, field, equipment, etc.)
2. Budgeting
3. Enterprise analysis
4. Day-to-day decision making
5. Payroll and check writing
6. Access to market news and weather information (p. 43).

The microcomputer has found a needed place in the agricultural industry because of its ability to aid in management decisions and data processing. Thompson (20) asserted that by 1990, the microcomputer will be an indispensible machine and will be found on nearly every American farm.

Software for Microcomputers

Gille (9) stated that during the past few years more than 200,000 microcomputers have been sold. Some of these microcomputers are being used effectively on farms while others are not. This can partially be attributed to the lack of available agricultural software.

One of the largest concerns buyers of microcomputers have is the availability of good software. McGrann (14) maintained that the availability of decision-making software is the primary constraint limiting the role of microcomputers in agriculture.

Nelson (15) stated that in Oklahoma:

The critical element of the computer system necessary for local or on-farm processing at this time is clearly software. A great deal of software is needed to provide for the multitude of problems and the wide variation in format and content desired for the diverse production situations found in agriculture (p. 51).

Fuller (8) indicated that Extension professionals have a role to play in creating software for agricultural applications. They should be encouraging the development of software systems which can manage and control farm operations. This new software must also be developed in a way that farm people will feel comfortable using it.

Many educators feel that once the decision to buy a microcomputer has been made, the system selection should be directed at software first. There are several potential sources of software for agricultural applications. According to Sowell (18) some of these sources are:

1. Vendors of microcomputer hardware
2. Commercial agricultural software suppliers
3. Agricultural Extension Services
4. Custom developed
5. User developed (p. 45).

Sowell (18) also stated that although there is a shortage of agricultural software, there will be more and better agricultural software available in the next three to five years. It will be easier to use and provide better documentation.

Teacher Inservice Training and Adult

Education for Microcomputer Usage

The computer revolution has touched virtually every aspect of American society. As a result, today's education almost requires some kind of computer instruction for students. The major problem that educators now face is that many teachers lack the knowledge and skills to provide adequate computer instruction. According to Brunhart (2), in a 1983 computer usage study, conducted by McGraw-Hill Research, 69 percent of the teachers surveyed said they read magazines to increase their computer knowledge, 23 percent had taken computer courses on their own and 28 percent had participated in inservice computer programs.

Bristol (1) reported that for a school to do something about computer literacy for students, they must first start with the teachers. The objective is to provide the teachers with enough computer knowledge that they can take part in developing curriculum and can integrate the computer into their own classrooms.

Placing a computer in a school system does not necessarily mean that it will be used effectively. A certain amount of staff training is required. Rawitsch (17) maintained that the Minnesota Educational Computer Consortium (MECC) has developed a process for aiding schools with this particular situation. MECC has a team of instructional coordinators that spend each school year visiting schools presenting workshops, teaching classes, organizing computer conferences, publishing newsletters and responding to phone queries in an attempt to increase microcomputer usage in Minnesota schools. So far, it has been very successful.

Agricultural Education teachers are quickly finding that they too
must possess a certain amount of computer knowledge and skills to pro-
vide their students the type of education needed for today's agriculture.
Leising (12) indicated:

> There is little question that all Vocational Agriculture
> teachers should receive some type of education to assist
> them in meeting this important challenge of the 80's,
> that is integrating computer-assisted instruction as a new
> teaching strategy (p. 4).

Leising (13) reported that it was determined in the state of
California that there was a priority need for teacher inservice training
of community college agricultural instructors in computer usage. An
advisory committee of teachers, university faculty and computer
experts was organized to advise the project. Leising (13) maintained
that the committee developed the following areas of teacher inservice
training:

1. Hardware type and availability
2. Computer use and software availability
3. Instructor competence
4. Constraints to using computer-assisted instruction (p. 15).

The study revealed that instructors in California did not want
to learn computer programming, but rather wanted to use existing soft-
ware. As a result of the study, a series of one-day workshops was
developed to show agricultural instructors the potentials of the micro-
computer through hands-on use.

Adult education is another area in which there is a need for com-
puter instruction. Fuller (8) maintained that as more and more farmers
begin to use microcomputers, it will be Extension's role to educate
these people in computer usage. Part of Extension's educational efforts

should be directed to showing agricultural people how computer uses can be practical in agricultural operations.

Nelson (15) stated that in Oklahoma, there has not been a sufficient general demand for holding county meetings on microcomputers in Extension. It is certain that in the future, farmers will be using microcomputers and will appreciate instruction in their applications. Extension will need to have field staff sufficiently trained in the rudiments of microcomputer operations and applications to meet farmers' upcoming computer needs.

The opportunities for microcomputers in education and agriculture appear to be endless. Brunhart (2) stated:

> As educators adjust and learn more about implementing this new technology, there will be problems. But the advantages of preparing people for a technological world by learning through computers should outweigh those problems. The most important and lasting advantage could be the renewed enthusiasm for learning (p. 15).

Summary

This review of literature presented background information with emphasis on the areas: microcomputers as a tool in classroom instruction, microcomputers as a tool in the agricultural industry, software for the microcomputer and teacher inservice training and adult education for microcomputer usage.

Microcomputers are finding widespread acceptance and use in education and agriculture. The literature points out the importance of students receiving computer instruction in preparation for a computer oriented world. As computer technology increases, the cost of a microcomputer should continue to decrease. Hopefully, this will provide

schools with limited funds the needed incentive to purchase microcomputers for their educational systems.

The agricultural industry is finding numerous applications for the microcomputer. Many farmers and ranchers have incorporated microcomputers into their agricultural operations to aid them in day-to-day management decisions, record keeping, enterprise analysis and budgeting. A major constraint limiting the microcomputer's role in agriculture is the lack of available software. Efforts are being made by agricultural educators and computer experts to eleviate the software problem. Hopefully, the result will be better and easier to use software for agricultural applications.

The computer revolution has changed the direction of today's education. As a result, educators are now faced with the problem of not only providing computer instruction for the students, but the teachers as well. Many school districts are now providing their teachers with inservice training. Universities and colleges are providing help in this area through computer awareness programs and teacher workshops. Extension will play an important role in adult education, especially for educating farmers and ranchers in computer uses and operations. Extension will also serve as a major source for agricultural software.

The researcher feels safe in saying that the computer revolution will continue to flourish for many years to come. Education, whether through universities, colleges, school districts or through Extension, will have to provide students and adults with the skills and knowledge needed to function in a world dominated by computers.

CHAPTER III

DESIGN AND METHODOLOGY

The purpose of this study was to determine the perceptions of
selected Oklahoma Vocational Agriculture teachers and superintendents
concerning microcomputer usage in Vocational Agriculture classrooms. In
order to collect and analyze data pertaining to the purpose and objectives
of the study, it was necessary to accomplish the following tasks:

1. Determine the population for the study.

2. Devise a data collection method

3. Develop an instrument.

4. Determine a method of data analysis.

The Sample

The sample included in this study was comprised of selected Oklahoma
Vocational Agriculture teachers and superintendents. Preliminary re-
search indicated that no prior research had been done in Oklahoma regard-
ing perceptions of Vocational Agriculture teachers and superintendents
concerning microcomputer utilization in Vo Ag classrooms. To accomplish
the intent of the study, it was decided to administer the survey on a
statewide basis. There were 472 Vocational Agriculture teachers in the
state at the time of the survey. A confidence interval of .95 was used
to determine the sample size. According to Steele and Torrie (19) the
probability .95 measures the degree of confidence placed in the process

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that determines the interval in which the population mean will fall. Furthermore, with regard to sampling, Steel and Torrie (19) emphasized that for each random sample and any level of probability, a confidence interval is established about the population mean. A random sample of Vocational Agriculture teachers was conducted and 156 teachers were selected along with the superintendents of each of the schools. It should be noted that 156 (sample size) was calculated by utilization of the following formula suggested by Cochran (4):

$$n = \frac{\frac{t^2 PQ}{d^2}}{1 + [\frac{1}{N}(\frac{t^2 PQ}{d^2} - 1)]} \tag{3.1}$$

where, $t = 1.926$, $P = .5$, $Q = 1 - P = .5$, $d = .05$, $N = 472$ and $n = 156$.

Development of the Instrument

In preparation of the study, it was decided that two questionnaires would be used to meet the objectives of the study -- one for Vocational Agriculture teachers and one for superintendents. During the review of literature, various methods of data gathering instruments were reviewed by the researcher.

In order to develop the questionnaires, a set of objectives was determined for each questionnaire to achieve. It was from these objectives that questions were then developed. The Agricultural Education staff of Oklahoma State University was then asked to critique and make comments on the questionnaires themselves. The Vocational Agriculture teacher questionnaire was then field tested on Vocational Agriculture teachers during a Professional Improvement (P.I.) meeting. Results

yielded new revisions for the questionnaire. The superintendent question-
naire received additional critiques and comments from Dr. Kenneth St.
Claire, Department of Higher Education, at Oklahoma State University.
After revision of the two questionnaires, the final forms were printed.

Twenty-three questions were listed on the Vocational Agriculture
teacher questionnaire. The first seven questions were developed to
obtain demographic data. The remaining 16 questions were formulated
to gather information that could be used to fulfill the purpose and
objectives of the study.

The superintendent questionnaire featured eight questions. Res-
pondents were asked to indicate the amount of emphasis or importance
now placed and emphasis that should be placed on microcomputer usage in
the school and Vo Ag department. A Likert-type scale with categories of
"no emphasis or importance = 1," "little emphasis or importance = 2,"
"some emphasis or importance = 3," "much emphasis or importance = 4,"
and great amount of emphasis or importance = 5" was used. This enabled
the determination of superintendents' perceptions toward microcomputer
usage in Vo Ag classrooms.

Collection of Data

The 1983-1984 list of Oklahoma Vocational Agriculture Departments
was obtained form the State Department of Agricultural Education. The
schools, addresses, Vocational Agriculture teachers' and superintendents'
names were obtained for use in sending out the questionnaires. Teachers
were randomly selected for the study by using a random number chart (19).
Survey instruments were sent to 156 Vocational Agriculture teachers and
their superintendents. In instances where more than one teacher was

selected from the same department; the additional teacher was disqualified. The questionnaires were accompanied by a cover letter and a stamped return envelope. The questionnaires were mailed out October 5, 1984, and teachers and superintendents were asked to return the questionnaires within 10 days. Non-respondents were mailed a second questionnaire three weeks later.

Analysis of Data

The following description of the analysis procedure was included to provide an overview of the statistical treatment of the data collected. Steele and Torrie (19) stated:

> In the actual process of selecting the sample units from a finite population, a table of random numbers was utilized and sampling was without replacement. Apart from this, the sampling units were drawn independently (p. 415).

The Vocational Agriculture teacher questionnaire dealt with nominal data, therefore, percentages, ranks, mean scores and frequency of selection were utilized. The superintendents' questionnaire featured a Likert-type scale, therefore, frequency of selection and mean scores were used to describe the data. A five point Likert-type scale was utilized to determine the mean responses from data collected from the superintendents' survey. Real limits were established and numerical values were assigned to the categories of importance or emphasis that superintendents perceive as essential with regard to microcomputers in the high school Vo Ag classroom.

Table 1 reveals the categories utilized to ascertain extent of use, numerical values assigned, and the range of absolute values set forth.

TABLE I

MEAN RESPONSES REGARDING SUPERINTENDENT PERCEPTIONS
TOWARD MICROCOMPUTER USAGE IN HIGH SCHOOL
AND VOCATIONAL AGRICULTURE CLASSROOMS

Response Catagories as to Extent of Use	Numerical Value	Range of Actual Limits
No emphasis or importance	1	1.00–1.49
Little emphasis or importance	2	1.50–2.49
Some emphasis or importance	3	2.50–3.49
Much emphasis or importance	4	3.50–4.49
Great amount of emphasis or importance	5	4.50–5.00

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

The major purpose of this study was to assess the need and/or
use of microcomputers in Vocational Agriculture classrooms as perceived
by selected Oklahoma Vocational Agriculture teachers and superintendents.
In order to accomplish the purpose of the study, the following objectives
were formulated:

1. To characterize the typical Vocational Agriculture teacher
    respondent as to age, experience, tenure, etc.

2. To determine the perceptions of the Vocational Agriculture
    teachers with regard to the need of microcomputers in the Vo
    Ag program.

3. To determine the perceptions of Vocational Agriculture
    teachers with regard to use of microcomputers in the Vo Ag
    program.

4. To determine the importance or emphasis of microcomputer usage
    relative to the high school educational program as perceived
    by the school superintendent.

5. To determine the importance, emphasis or value of microcomputer
    usage relative to the Vocational Agriculture program as perceived
    by school superintendents.

Findings relative to the objectives of the study were presented in
this chapter. Data presented in this chapter were obtained from selected

Oklahoma Vocational Agriculture teachers and superintendents. One hundred fifty-six questionnaires were mailed to selected teachers and 156 selected superintendents. A follow-up letter was sent three weeks later to all non-respondents. A total of 114 Vocational Agriculture teacher and 135 superintendent questionnaires respectively were returned by November, 1984, and data summarized. The remainder of this chapter was devoted to presenting an analysis and summarization of data collected.

Analysis of the data summarized in Table II presented responses pertaining to the present age of Oklahoma Vocational Agriculture teachers. One hundred fourteen teachers responded. Analysis of the data revealed that 74.55 percent of the teacher respondents were 40 years of age and younger. Analysis of data further indicated that of the 74.55 percent, 37.71 percent were between the ages of 22 and 30. However, only 10.52 percent revealed they were over 50.

TABLE II

SUMMARY OF THE PRESENT RANGE IN AGE OF SELECTED
VOCATIONAL AGRICULTURE TEACHER RESPONDENTS

Age	Frequency	Percent
22-30	43	37.71
31-40	42	36.84
41-50	17	14.91
Over 50	12	10.52

Analysis of the data presented in Table III revealed the number
of years Vocational Agriculture teachers had taught. It was found that
almost half (48.25 percent) of the teachers surveyed had 10 years or
less teaching experience. However, 35.97 percent of the respondents
indicated that they had from 11 to 20 years experience, while 18
teachers said that they had over 20 years experience.

TABLE III

A SUMMARY OF THE RANGE IN YEARS OF TEACHING
EXPERIENCE BY SELECTED VOCATIONAL
AGRICULTURE TEACHER RESPONDENTS

Years	Number	Percent
0-5	33	28.95
6-10	22	19.30
11-15	26	22.81
16-20	15	13.16
Over 20	18	15.79
TOTALS	114	100.00

The data summarized in Table IV revealed the tenure of Vocational
Agriculture teachers currently employed. It was interesting to note
that 48.25 percent of the teachers surveyed had been employed in their
local system for five years or less. However, almost 8 percent (7.89
percent) had been employed in their respective school systems for 20
years or more.

TABLE IV

A SUMMARY OF THE RANGE IN TENURE OF SELECTED
VOCATIONAL AGRICULTURE TEACHER RESPONDENTS
IN THEIR PRESENT SCHOOL SYSTEMS

Years	Frequency	Percent
0-5	55	48.25
6-10	21	18.42
11-15	22	19.30
16-20	7	6.14
Over 20	9	7.89
TOTALS	114	100.00

Analysis of the data in Table V revealed the size of the Vocational Agriculture teachers' respective school systems with regard to numbers of students. Almost 69 percent (68.54 percent) of the selected Oklahoma school systems represented in the survey reported enrollments of 400 students or less. However, 21.93 percent of the schools were reported to have over 500 students.

The data analyzed in Table VI, which dealt with the number of students enrolled in selected Oklahoma Vocational Agriculture programs, revealed that 64.03 percent of the Vo Ag departments surveyed had 50 students or less. However, analysis of the data also revealed that 7.89 percent of the Vo Ag departments surveyed had over 100 students.

TABLE V

A SUMMARY OF THE RANGE IN STUDENT ENROLLMENTS
BY SCHOOLS SURVEYED CONDUCTING VOCATIONAL
AGRICULTURE PROGRAMS

Students	Frequency	Percent
Under 100	21	18.42
100-200	25	22.93
201-400	31	27.19
401-500	12	10.53
Over 500	25	21.93
TOTALS	114	100.00

TABLE VI

A SUMMARY OF THE RANGE IN STUDENT ENROLLMENTS
AS REPORTED BY SELECTED OKLAHOMA
VOCATIONAL AGRICULTURE TEACHER
RESPONDENTS

Students	Frequency	Percent
0-25	14	12.28
26-50	59	51.75
51-100	32	28.07
Over 100	9	7.89
TOTALS	114	100.00

The analysis of the data in Table VII revealed the attainment of advanced degrees by the selected Vocational Agriculture teachers. Of the 114 teacher respondents, it was shown that 88 (77.19 percent) had Bachelor degrees and 26 (22.81 percent) held Master of Science degrees. The data did not disclose any respondents with terminal degrees.

TABLE VII

A SUMMARY OF DEGREE LEVELS HELD BY SELECTED
VOCATIONAL AGRICULTURE TEACHER
RESPONDENTS

Degree	Frequency	Percent
Bachelors	88	77.19
Masters	26	22.81
Ph.D.	0	0.00
Ed.D.	0	0.00
Other	0	0.00
TOTALS	114	100.00

The analyzed data in Table VIII summarized the number of Oklahoma Vocational Agriculture departments surveyed which had microcomputers. Sixteen (14.04 percent) of the Vo Ag departments surveyed had micro-computers, while almost 86 percent reported not having microcomputers.

TABLE VIII

A SUMMARY OF SELECTED VOCATIONAL AGRICULTURE
DEPARTMENTS WITH MICROCOMPUTERS

Selection	Number	Percent
Yes	16	14.04
No	98	85.96
TOTALS	114	100.00

The analysis of the data in Table IX illustrates that of the respondent Vocational Agriculture departments having microcomputers, 87.50 percent of them had only one. However, there were two (12.50 percent) Vo Ag departments that had more than one.

The data presented in Table X summarized the most frequently utilized microcomputer brands used by Vocational Agriculture departments as indicated by respondents. The analysis of the data revealed that 56.25 percent of the Vo Ag departments with microcomputers had TRS-80's, almost 44 percent (43.75 percent) had Apple IIe's. It was interesting to note that IBM's, Commodore 64's and other name brand microcomputers were not used at all by those participating in the survey.

TABLE IX

A SUMMARY OF THE NUMBER OF MICROCOMPUTERS UTILIZED
BY RESPONDENTS' VOCATIONAL
AGRICULTURE DEPARTMENTS

Quantity	Number	Percent
One	14	87.50
Two	2	12.50
Three	0	0.00
Four	0	0.00
Over four	0	0.00
TOTALS	16	100.00

TABLE X

A SUMMARY OF THE BRANDS OF MICROCOMPUTERS MOST
FREQUENTLY UTILIZED BY RESPONDENT VOCATIONAL
AGRICULTURE DEPARTMENTS

Type	Frequency	Percent
IBM PC	0	0.00
Apple IIe	7	43.75
TRS-80	9	56.25
Commodore 64	0	0.00
Other	0	0.00
TOTALS	16	100.00

The data analyzed in Table XI dealt with microcomputer utilization by responding Vocational Agriculture departments. Three respondents (18.75 percent) stated that they used microcomputers for record keeping purposes. In addition, an equal percentage (18.75 percent) of respondents utilized the microcomputer not only for record keeping but as a test file, mode for computer games and other purposes not mentioned. Furthermore, it was interesting to note that all of the categories included for selection on the questionnaire regarding microcomputer utilization were selected either singularly or in combination with one another.

The number of responding Vocational Agriculture departments allowing students to practice via computer games was revealed in Table XII. Eight respondents (50 percent) allowed students to utilize computer games while the other 50 percent did not.

The analysis of data in Table XIII further illustrated the number concerning respondent Vocational Agriculture departments which allowed students to only utilize computer games. Of the eight respondents to the question, seven (87.50 percent) did not limit their students' work to just computer games. However, one respondent (12.50 percent) did limit his students' microcomputer experience to just computer games.

TABLE XI

A SUMMARY OF THE TYPES OF MICROCOMPUTER
UTILIZATION BY RESPONDENT VOCATIONAL
AGRICULTURE DEPARTMENTS

Categories	Frequency	Percent
Test file	0	0.00
Record keeping	3	18.75
Awards applications	0	0.00
Computer games	0	0.00
Other	2	12.50
SELECTED COMBINATIONS		
Record keeping and computer games	1	6.25
Computer games and other	1	6.25
Test file, record keeping and awards applications	2	12.50
Test file, record keeping and other	2	12.50
Test file, record keeping, awards applications and other	2	12.50
Test file, record keeping, computer games and other	3	18.75
TOTALS	16	100.00

TABLE XII

A SUMMARY OF SELECTED VOCATIONAL AGRICULTURE
DEPARTMENTS IN WHICH STUDENTS UTILIZED
COMPUTER GAMES

Selection	Number	Percent
Yes	8	50.00
No	8	50.00
TOTALS	16	100.00

TABLE XIII

A SUMMARY OF VOCATIONAL AGRICULTURE DEPARTMENTS
WITH MICROCOMPUTERS IN WHICH STUDENTS ONLY
UTILIZED COMPUTER GAMES

Selection	Frequency	Percent
Yes	1	12.50
No	7	87.50
TOTALS	8	100.00

The data presented in Table XIV summarized the most utilized software programs by respondent Oklahoma Vocational Agriculture departments. The analysis of the data indicated that almost 29 percent (28.57 percent) of the Vo Ag departments represented in the survey utilized software programs other than those listed on the questionnaire. However, of those

TABLE XIV

A SUMMARY OF MOST FREQUENTLY UTILIZED SOFTWARE
PROGRAMS BY THE RESPONDENTS' VOCATIONAL
AGRICULTURE DEPARTMENTS

Programs	Number	Percent
Word processors	2	14.29
Visicalc	0	0.00
Budgets	2	14.29
None	0	0.00
Other	4	28.57
SELECTED COMBINATIONS		
Word Processors and budgets	2	14.29
Word processors and other	2	14.29
Visicalc and budgets	1	7.14
Word processors, visicalc, budgets, and other	1	7.14
TOTALS	14	100.00

programs listed, 14.29 percent of the departments utilized word processing

programs. Furthermore, an equal percentage of departments (14.29 percent)

utilized budgeting programs. The analysis of the data also indicated

that several of the departments utilized more than one kind of software

program in their Vo Ag department. Almost 43 percent (42.86 percent) of

the respondents utilized two or more software programs. In addition,

it was interesting to note that 100 percent of the respondents utilized

some kind of software program in their departments.

The information presented in Table XV utilized a Likert-type scale to ascertain and describe the data. The analysis of the data summarized the frequency microcomputers were utilized by responding Vocational Agriculture departments. The categories of "little = 1," "some = 2," "much = 3" and "very much = 4" and their respective "weights" were selected to assist in describing the data in numerical terms. An overall mean score of 2.2 described the frequency of use microcomputers seem to be receiving in the respondents' Vo Ag departments. The largest number of responses were in the "some" category while one each were in the respective categories of "much" and "very much".

TABLE XV

A SUMMARY OF THE UTILIZATION MICROCOMPUTERS
RECEIVED IN THE RESPONDENT'S VOCATIONAL
AGRICULTURE DEPARTMENTS

	Response Catagories				
	Little N	Some N	Much N	Very Much N	Mean Score
Amount of use	0	13	1	1	2.20

N = Total response of 15 participants.

Summarized in Table XVI, the data revealed the number of school systems which had microcomputers. The analysis of the data indicated that 93.52 percent of the school systems represented in the survey had microcomputers, while 6.48 percent did not report acquisition or utilization.

TABLE XVI

A SUMMARY OF SCHOOL SYSTEMS WHICH HAD MICROCOMPUTERS
AS REPORTED BY VOCATIONAL AGRICULTURE
TEACHER RESPONDENTS

Selection	Frequency	Percent
Yes	101	93.52
No	7	6.48
TOTALS	108	100.00

The availability of the representative school systems' microcomputers to the Vocational Agriculture department was summarized in Table XVII. It was found that almost 69 percent (68.63 percent) of the school systems involved in the survey made microcomputers available to their respective Vo Ag departments. However, 31.37 percent of the school systems did not make their computers available to the Vo Ag department.

TABLE XVII

A SUMMARY OF MICROCOMPUTER AVAILABILITY IN SCHOOL
SYSTEMS WITH THE RESPONDENT'S VOCATIONAL
AGRICULTURE DEPARTMENTS

Selection	Frequency	Percent
Yes	70	68.63
No	32	31.37
TOTALS	102	100.00

The data summarized in Table XVIII revealed the amount of time the representative school systems' microcomputers were available to the respondent Vocational Agriculture departments. The analysis of the data revealed that 40.30 percent of the school systems made their computers available to the Vo Ag department one period a day. Almost 21 percent (20.90 percent) made them available after school hours, while an additional 5.97 percent of the school systems made their microcomputers available to the Vo Ag department for two periods a day.

The analysis of Table XIX showed the most frequently utilized microcomputer brands by representative school systems. It was revealed that 37.05 percent of the respondent schools systems involved in the survey utilized Apple IIe's, while almost 32 percent (31.94 percent) of the school systems employed TRS-80's and 13.89 percent utilized Commodore 64 microcomputers. Furthermore, it was interesting to note that all the microcomputer brands listed on the questionnaire were utilized by the representative school systems. In addition, some of the listed microcomputer brands were utilized in combination with one another.

TABLE XVIII

A SUMMARY OF TIME ALLOTTED BY SCHOOL SYSTEMS
WITH MICROCOMPUTERS TO RESPONDENT'S
VOCATIONAL AGRICULTURE DEPARTMENTS

Categories	Frequency	Percent
Less than one period a day	9	13.43
One period a day	27	40.30
Two periods a day	4	5.97
Over two periods a day	13	19.40
After school hours	14	20.90
TOTALS	67	100.00

TABLE XIX

A SUMMARY OF THE MOST FREQUENTLY USED MICROCOMPUTER
BRANDS BY REPRESENTATIVE OKLAHOMA SCHOOL
SYSTEMS AS INDICATED BY VOCATIONAL
AGRICULTURE TEACHER RESPONDENTS

Type	Number	Percent
IBM PC	1	1.39
Apple IIe	27	37.50
TRS-80	23	31.94
Commodore 64	10	13.89
Other	3	4.17
SELECTED COMBINATIONS		
IBM PC and Apple IIe	1	1.39
IBM PC and TRS-80	1	1.39
IBM PC and Commodore 64	1	1.39
Apple IIe and TRS-80	1	1.39
Apple IIe and Commodore 64	2	2.78
TRS-80 and Commodore 64	1	1.39
TRS-80 and Other	1	1.39
TOTALS	72	100.00

The data summarized in Table XX described the most frequently utilized software programs by representative school systems involved in the survey. The analysis of the data revealed that 38.33 percent of the schools' systems utilized some kind of word processing program. In

addition, it was found that 15 percent of the school systems utilized a combination of word processing and budgeting programs. Furthermore, the analysis of the data indicated that almost 12 percent (11.67 percent) of the school systems in the survey utilized software programs other than those listed on the questionnaire.

TABLE XX

A SUMMARY OF THE KINDS OF SOFTWARE PROGRAMS UTILIZED
MOST FREQUENTLY BY REPRESENTATIVE SCHOOL SYSTEMS
AS REPORTED BY THE VOCATIONAL AGRICULTURE
TEACHER RESPONDENTS

Programs	Number	Percent
Word processor	23	38.33
Visicalc	2	3.33
Budgets	5	8.33
Other	7	11.67
SELECTED COMBINATIONS		
Word processor and Visicalc	3	5.00
Word Processor and Budgets	9	15.00
Visicalc and Budgets	1	1.67
Word Processor, Visicalc and Budgets	5	8.33
Word Processor, Visicalc and Other	2	3.33
Word Processor, Budgets and Other	1	1.67
Word Processor, Visicalc, Budgets and Other	2	3.33
TOTALS	60	100.00

The data summarized in Table XXI revealed that 19.39 percent of the respondents believed that a major constraint limiting microcomputer utilization in the Vo Ag classroom was limited to the lack of software for agricultural applications. Further analysis of the data revealed that 16.33 percent of the respondents believed that the microcomputer required someone with computer expertise to operate it and therefore was perceived as a major constraint in limiting its use in the classroom. However, almost 44 percent (43.86 percent) of the respondents indicated that there was more than one specific constraint limiting microcomputer utilization in the Vo Ag classroom. Furthermore, it was interesting to note that 5.10 percent of the respondents indicated that all of the constraints listed on the questionnaire were valid constraints limiting microcomputer utilization in the Vo Ag classroom.

The analysis of the data presented in Table XXII revealed the need for microcomputers in respondent Vocational Agriculture departments. According to the 111 Vo Ag teacher respondents, almost 86 percent (85.59 percent) indicated a need for the microcomputer in the Vo Ag department, while 14.41 percent indicated that they saw no need for a microcomputer in their department.

An analysis of the data presented in Table XXIII described a summary of reasons for utilizing microcomputers in Vocational Agriculture departments. Analysis of the data indicated that 31.11 percent of the respondents believed that utilizing microcomputers in the Vo Ag department better prepared agriculture students for the job market, while in addition, 30 percent of the respondents indicated that all of the selections on the questionnaire were valid reasons for utilizing microcomputers in Vo Ag departments. Furthermore, it was interesting to note that

TABLE XXI

A SUMMARY OF CONSTRAINTS WITH MICROCOMPUTER UTILIZATION
IN THE VOCATIONAL AGRICULTURE CLASSROOM
AS DETERMINED BY SELECTED
TEACHER RESPONDENTS

Categories	Number	Percent
Requires too much time for each student to work on computer	12	12.25
Not enough software for agricultural applications	19	19.39
Requires someone with experience to operate it	16	16.33
Too costly to be practical	3	3.06
Other	5	5.10
SELECTED COMBINATIONS		
Requires too much time for each student to work on computer and not enough software for agricultural applications	7	7.14
Requires too much time for each student to work on computer and requires someone with experience to operate it	5	5.10
Requires too much time for each student to work on computer and too costly to be practical	3	3.06
Requires too mucy time for each student to work on computer and other	1	1.02
Not enough software for agricultural applications and requires someone with experience to operate it	8	8.16
Not enough software for agricultural applications and other	2	2.04

TABLE XXI (Continued)

Requires someone with experience to operate it and too costly to be practical	3	3.06
Requires too much time for each student to work on computer, not enough software for agricultural applications and requires someone with experience to operate it	8	8.16
Not enough software for agricultural applications, requires someone with experience to operate it and too costly to be practical	1	1.02
Requires too much time for each student to work on computer, not enough software for agricultural applications, requires someone with experience to operate it, and too costly to be practical	5	5.10
TOTALS	98	100.00

TABLE XXII

A SUMMARY OF THE NEED FOR MICROCOMPUTERS IN
OKLAHOMA VOCATIONAL AGRICULTURE DEPARTMENTS
AS INDICATED BY TEACHER RESPONDENTS

Selections	Frequency	Percent
Yes	95	85.59
No	16	14.41
TOTALS	111	100.00

56.65 percent of the respondents selected more than one reason listed on the questionnaire for utilizing microcomputers in Vo Ag departments.

TABLE XXIII

A SUMMARY OF EXPLANATIONS FOR MICROCOMPUTER UTILIZATION
IN RESPONDENT OKLAHOMA VOCATIONAL
AGRICULTURE DEPARTMENTS

Categories	Frequency	Percent
Allows one to be more efficient	7	7.78
Better prepares agriculture students for college	1	1.11
Better prepares agriculture students for the job market	28	31.11
Other	3	3.33
SELECTED COMBINATIONS		
Allows one to be more efficient and better prepares students for college	4	4.44
Allows one to be more efficient and better prepares students for the job market	3	3.33
Allows one to be more efficient and other	2	2.22
Better prepares agriculture students for college and better prepares students for the job market	10	11.11
Better prepares agriculture students for college and other	1	1.11
Better prepares agriculture students for the job market and other	1	1.11

TABLE XXIII (Continued)

Allows one to be more efficient, better prepares students for college and better prepares students for the job market	27	30.00
Allows one to be more efficient, better prepares agriculture students for college, better prepares agriculture students for the job market and other	3	3.33
TOTALS	90	100.00

Table XXIV illustrated various perceived limitations for not utilizing microcomputers in Vocational Agriculture departments. In analyzing the data, it was revealed that 30.77 percent of the respondents believed the major limitation for not using microcomputers was due to the lack of available software. Furthermore, 23.08 percent of the respondents indicated that the microcomputer required too much time to learn how to operate, while 30.56 percent of the respondents selected more than one reason for not utilizing microcomputers.

The data presented in Table XXV summarized the response of superintendents concerning microcomputer usage in high school and Vocational Agriculture classrooms. Analysis of the data revealed that selected Oklahoma superintendents were placing "much emphasis or importance" on the role of microcomputers in the high school student's education. The mean score for the "importance" or "emphasis" now being placed was 3.51 and the mean score for the "importance" or "emphasis" which should be placed was 4.06, a mean increase of .55. Both fell into the "much emphasis" or "importance" category.

TABLE XXIV

A SUMMARY OF EXPLANATIONS FOR NOT UTILIZING
MICROCOMPUTERS IN RESPONDENT VOCATIONAL
AGRICULTURE DEPARTMENTS

Categories	Frequency	Percent
Too costly	2	15.39
Requires too much time to learn one	3	23.08
Not enough software to aid the program	4	30.77
Students have no interest	0	0.00
Other	0	0.00
SELECTED COMBINATIONS		
Too costly and not enough software to aid the program	1	7.69
Too costly, requires too much time to learn one and students have no interest	1	7.69
Too costly, not enough software to aid the program and other	1	7.69
Too costly, requires too much time to learn one, not enough software to aid the program, students have no interest and other	1	7.69
TOTALS	13	100.00

TABLE XXV

A SUMMARY OF SUPERINTENDENT RESPONSES OF
IMPORTANCE CONCERNING MICROCOMPUTER
USAGE IN HIGH SCHOOL AND VOCATIONAL
AGRICULTURE CLASSROOMS

Categories	Importance or Emphasis Now Being Placed		Importance or Emphasis Which Should Be Placed	
	N	Mean	N	Mean
Importance of micro- computers to high school record keeping operations	133	2.36	131	3.63
Importance of micro- computers to the vocational agricul- ture department's record keeping operations	132	1.99	131	3.27
Importance of micro- computers to the high school student's education	134	3.51	132	4.06
Importance of micro- computers to the vocational agricul- ture student's education	130	2.55	132	3.64
Emphasis that your high school instruc- tors place on micro- computer usage	134	2.82	132	3.61
Emphasis on the expan- sion of present micro- computer programs within the school system	134	3.46	132	3.94
Emphasis on the expan- sion of present com- puter programs within the vocational agriculture depart- ment	132	2.28	131	3.39

TABLE XXV (Continued)

Your placement of value on the use of microcomputers in vocational agriculture classrooms	131	2.64	133	3.44

There was an increase in the mean score (2.55) for the importance of microcomputers to the Vocational Agriculture student's education regarding "importance" or "emphasis" now being placed. This fell into the "some emphasis or importance" category. The mean score for the "importance" or "emphasis" which should be placed was 3.64, while a mean score of 3.64 was equivalent to "much emphasis or importance" and was a mean increase of 1.09. It was interesting to note that the "importance" or "emphasis" now being placed on the expansion of present computer programs within the Vocational Agriculture department depicted a mean score of 2.28 or "little emphasis or importance". The "importance" or "emphasis" which should be placed earned a mean score of 3.39. This was an increase of 1.11 and placed it in the "some emphasis or importance" category. A mean increase of the superintendent's placement of value on the use of microcomputers in Vocational Agriculture was also recorded. "Importance" or "emphasis" now being placed showed a mean score of 2.64 or the equivalent of "some emphasis or importance". However, the "importance" or "emphasis" which should be placed revealed a mean score of 3.44 or the equivalent of "some emphasis or importance". The two categories for all practical purposes stayed the same.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The major purpose of this study was to assess the need and/or use
of microcomputers in Vocational Agriculture classrooms as perceived by
selected Oklahoma Vocational Agriculture teachers and superintendents.
In order to accomplish the purpose of the study, the following objectives
were formulated:

1. To characterize the typical Vocational Agriculture teacher

    respondent as to age, experience, tenure, etc.

2. To determine the perceptions of the Vocational Agriculture

    teachers with regard to the need of microcomputers in the Vo

    Ag program.

3. To determine the perceptions of Vocational Agriculture teachers

    with regard to use of microcomputers in the Vo Ag program.

4. To determine the importance or emphasis of microcomputer usage

    relative to the high school educational program as perceived

    by the school superintendent.

5. To determine the importance, emphasis or value of microcomputer

    usage relative to the Vocational Agriculture program as

    perceived by the school superintendent.

Data were collected by the use of mailed questionnaires from 114
selected Vocational Agriculture teachers and 135 superintendents from
across the state of Oklahoma. Seventy-three percent of the Vocational

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Agriculture teachers responded to the survey, while of the superintendents,
87 percent returned the questionnaires. Frequency of selection, percen-
tages and mean scores were used to analyze and present the data. The
summary and conclusions drawn from study findings were presented relative
to specific objectives.

Summary of Findings

The summary of findings for the study were divided into two sections.
The first section of the summary was devoted to reporting the findings of
the Vocational Agriculture teacher questionnaire, while the second section
was devoted to reporting the results of the superintendent survey.

Vocational Agriculture Teachers

A summary of the demographic data revealed that most (74.55 percent)
of the Oklahoma Vocational Agriculture teacher respondents were between
the ages of 22 and 40. Almost 50 percent (48.25 percent) of the respon-
dents had 10 years or less teaching experience. Furthermore, 51.75
percent of the respondents had enrollments between 26 and 50 students in
the Vocational Agriculture program. In addition, 77.19 percent of the
respondents had Bachelor of Science degrees only.

As expected by the researcher, the number of respondent Oklahoma
Vocational Agriculture departments with microcomputers was fairly low.
Only 14.04 percent of the respondent Vo Ag departments had microcomputers.
The level of use those microcomputers received was termed as "some".

Most Vocational Agriculture teachers and students had access to
microcomputers whether the Vo Ag department had one or not. It was
further revealed that 93.52 percent of the Oklahoma school systems

represented in the survey had microcomputers and 68.63 percent of the school systems made their microcomputers available to the Vo Ag department.

Software was the major constraint effecting microcomputer usage in Vocational Agriculture classrooms. Almost 20 percent of the respondents indicated that software was the major constraint limiting use of microcomputers in Vo Ag departments.

Respondent teachers overwhelmingly determined that a need existed for microcomputers in the Vo Ag department. Almost 86 percent of the Vo Ag teachers surveyed indicated a need for microcomputers in their Vo Ag program. Furthermore, 31.11 percent of those participating in the survey indicated that the major need for microcomputers in the Vo Ag classroom was for better preparing agriculture students for the job market.

Superintendents

Respondent Oklahoma superintendents indicated that there has been an increase in emphasis which should be placed on the importance of microcomputers in the Vocational Agriculture department's record keeping operations. As a result of this increased emphasis, it was ascertained that a mean increase of 1.28 occurred between the amount of importance or emphasis now being placed and the amount of emphasis or importance which should be placed. This mean increase was large enough to increase the importance or emphasis level from little emphasis or importance to some emphasis or importance.

It was found that there was an increase in importance or emphasis which should be placed on the importance of microcomputers to the high

school student's education. A mean increase of .55 occurred between the
amount of emphasis now being placed and the amount of emphasis which
should be placed which resulted in a mean score of 4.06. A mean score
of 4.06 was the highest score received by any category on the questionnaire.
This indicated a level of great amount of emphasis or importance.

It was also found that there was an increase in importance or
emphasis which should be placed on the importance of microcomputers to
the Vocational Agriculture student's education. As revealed by a mean
increase of 1.09 between the amount of importance or emphasis now
being placed and the amount of emphasis or importance which should
be placed.

The superintendents also indicated that their placement of value
on the use of microcomputers in Vocational Agriculture classrooms
has significantly increased. A mean increase of .84 occurred between
the amount of importance or emphasis now being placed and the amount of
emphasis or importance which should be placed. This mean increase was
not large enough to increase the importance or emphasis level, however,
it is important to note that an increase did occur. It is also
interesting to note that a mean increase occurred between the amount of
emphasis or importance now being placed and the amount of emphasis which
should be placed for each category listed on the superintendent
questionnaire.

Conclusions

An analysis of the data and findings of this study were utilized
to ascertain and develop the following conclusions.

1. Based on the findings of the study, the typical Vocational Agriculture teacher respondent was between the ages of 22 and 40, held the Bachelor of Science degree and had 10 years or less teaching experience.

2. Based on the findings the typical Vocational Agriculture department respondents had enrollments ranging from 26 to 50 students.

3. Based on the findings of the study, a majority of the Oklahoma Vocational Agriculture departments responding to the study did not have microcomputers in their department but did have access and privilege of use of sharing the school's microcomputers.

4. Most superintendents seemed to concur that there should be an increased amount of emphasis on the utilization of microcomputers in the high school students' education as well as an increased amount of emphasis on microcomputer utilization in the Vocational Agriculture classroom.

5. The lack of available agricultural software was the major constraint effecting microcomputer usage in Vocational Agriculture classrooms.

6. Based on the findings of the study, it was concluded that there is a need to teach microcomputer skills in the Vocational Agriculture classroom.

7. As a result of the findings, it was concluded that microcomputer skills better prepare agricultural students for competing in the job market.

8. Based on the findings of the study, the Vocational Agriculture teacher and superintendent respondents seemed to have similar perceptions regarding microcomputer utilization in high school and Vocational Agriculture classrooms.

Recommendations

Based on the summary of this study the author has made the following recommendations:

1. District supervisors and teacher educators should stress the importance and utilization of microcomputers in Vocational Agriculture.

2. It is recommended that the state Vocational Agriculture staff plan and provide educational meetings for Vocational Agriculture teachers on effective use of microcomputers in agriculture and the acquisition of agricultural software programs.

3. An Agricultural Education course should be developed for undergraduates at Oklahoma State University and other teacher training institutions in the area of microcomputer usage in the Vocational Agriculture classrooms.

4. It is recommended that requirements for students graduating in Agricultural Education include at least one course in microcomputer utilization.

5. It is recommended that further studies concerning microcomputer usage in Vocational Agriculture and the FFA be expanded at the local, state, and national levels.

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APPENDIX

APPENDIX A

COVER LETTERS

OKLAHOMA STATE UNIVERSITY · STILLWATER

Department of Agricultural Education
(405) 624-5129

74078

October 3, 1984

Dear Vocational Agriculture Instructor:

I am conducting a study concerning microcomputer usage in high school vocational agriculture classes.

This opinionaire survey is conducted with the assistance of agriculture instructors throughout the state to determine their attitudes toward the use of microcomputers in the classroom.

Please take a few minutes from your busy schedule and help us in determining future directions with regard to computer and software utilization for high school vocational agriculture students. Please return the questionnaire in the self-addressed stamped envelope by October 20, 1984. All responses will be kept in strict confidence and used only for group analysis.

Your assistance is greatly appreciated.

Sincerely,

C.L. Littlefield
Graduate Assistant
Ag. Engineering Dept.

OKLAHOMA STATE UNIVERSITY · STILLWATER

Department of Agricultural Education
(405) 624-5129   74078

October 3, 1984

Dear Sir:

I am conducting a study concerning microcomputer usage in high school vocational agriculture classes.

This opinionnaire survey is conducted with the assistance of superintendents throughout the state to determine their attitudes toward the use of microcomputers in the classroom.

Please take a few minutes from your busy schedule and help us in determining future directions with regard to computer and software utilization for high school vocational agriculture students. Please return the questionnaire in the self-addressed stamped envelope by October 20, 1984. All responses will be kept in strict confidence and used only for group analysis.

Your assistance is greatly appreciated.

Sincerely,

C.L. Littlefield
Graduate Assistant
Ag. Engineering Dept.

APPENDIX B

FOLLOW UP LETTERS

OKLAHOMA STATE UNIVERSITY · STILLWATER

Department of Agricultural Education
448 Agricultural Hall
624-5129

74078

November 1, 1984

Dear Vocational Agriculture Instructor:

Recently a questionnaire was sent to you asking for your input concerning the use of microcomputers in vocational agriculture classrooms. It has yet to be received.

Due to a 44 percent return rate, your help is needed once again. Enclosed you will find another copy of the questionnaire. It is easy to fill out and for your convenience, very brief.

It is understood how busy your schedule is; however, your response is very important to this study. Please take the time to complete the questionnaire and return it as soon as possible, preferably today. If so, your time and trouble would be greatly appreciated. Thank you.

Sincerely,

C.L. Littlefield
Graduate Assistant
Agriculture Engineering
Oklahoma State University

OKLAHOMA STATE UNIVERSITY · STILLWATER

Department of Agricultural Education
448 Agricultural Hall
624-5129

74078

November 1, 1984

Dear Sir:

Recently a questionnaire was sent to you asking for your input concerning the use of microcomputers in vocational agriculture classrooms. It has yet to be received.

Due to an unsatisfactory return rate, your help is needed once again. Enclosed you will find another copy of the questionnaire. It is easy to fill out and for your convenience, very brief.

It is understood how busy your schedule is; however, your response is very important to this study. Please take the time to complete the questionnaire and return it as soon as possible, preferably today. If so, your time and trouble would be greatly appreciated. Thank you.

Sincerely,

C.L. Littlefield
Graduate Assistant
Agriculture Engineering
Oklahoma State University

APPENDIX C

QUESTIONNAIRES

MICROCOMPUTER QUESTIONNAIRE
(VOCATIONAL AGRICULTURE INSTRUCTOR)

Indicate your answer by placing a check in the corresponding blank. Check more than one if necessary.

1. Present age?
   1. _____ 22 - 30
   2. _____ 31 - 40
   3. _____ 41 - 50
   4. _____ over 50

2. Number of years you have taught vocational agriculture?
   1. _____ 0 - 5 yrs
   2. _____ 6 - 10 yrs.
   3. _____ 11 - 15 yrs.
   4. _____ 16 - 20 yrs.
   5. _____ over 20 yrs.

3. Number of years you have been employed in the present school system?
   1. _____ 0 - 5 yrs.
   2. _____ 6 - 10 yrs.
   3. _____ 11 - 15 yrs.
   4. _____ 16 - 20 yrs.
   5. _____ over 20 yrs.

4. Size of the present school system in number of students (9-12)?
   1. _____ under 100
   2. _____ 100 - 200
   3. _____ 201 - 400
   4. _____ 401 - 500
   5. _____ over 500

5. Number of students in your vo-ag program?
   1. _____ 0 - 25
   2. _____ 26 - 50
   3. _____ 51 - 100
   4. _____ over 100

6. Your degree level.
   1. _____ Bachelors
   2. _____ Masters
   3. _____ Ph.D.
   4. _____ Ed.D.
   5. _____ Other Specify _____

7. Does your vo ag department have microcomputers?
   1. _____ yes
   2. _____ no

* IF NOT, OMIT QUESTIONS 8 THROUGH 14 AND BEGIN WITH QUESTION 15.

8. How many?
   1. _____ one
   2. _____ two
   3. _____ three
   4. _____ four
   5. _____ over four

9. What kind?
   1. _____ IBM PC
   2. _____ Apple IIe
   3. _____ TRS-80
   4. _____ Commodore 64
   5. _____ Other Specify _____

10. How is the microcomputer used in the vo-ag program?
    1. _____ test file
    2. _____ record keeping
    3. _____ awards applications
    4. _____ computer games
    5. _____ other Specify _____
       _____

11. Do your vo-ag students play computer games on the microcomputer?
    1. _____ yes
    2. _____ no

** IF NOT, OMIT QUESTION 12 AND BEGIN WITH QUESTION 13.

12. Are computer games the only class activity the students utilize on the computer?
    1. _____ yes
    2. _____ no

13. Kind of software programs utilized by the ag department?
    1. _____ Word processor
    2. _____ Visicalc
    3. _____ Budgets
    4. _____ None
    5. _____ Other Specify _____
       _____

14. Amount of use the microcomputer receives?
    1. _____ little
    2. _____ some
    3. _____ much
    4. _____ very much

15. Does the school have microcomputers?

  1. _____ yes
  2. _____ no

--- IF NOT. OMIT QUESTIONS 16 THROUGH 19 AND BEGIN WITH 20.

16. Are the school's computers available to you and the vo-ag students?

  1. _____ yes
  2. _____ no

--- IF NOT. OMIT QUESTIONS 17 THROUGH 19 AND BEGIN WITH 20.

17. Time period available?

  1. _____ less than one period a day
  2. _____ one period a day
  3. _____ two periods a day
  4. _____ over two periods a day
  5. _____ after school hours

18. Kind of microcomputers utilized by your school?

  1. _____ IBM PC
  2. _____ Apple IIe
  3. _____ TRS-80
  4. _____ Commodore 64
  5. _____ Other Specify _____

19. Kind of software programs utilized by the school?

  1. _____ Word processor
  2. _____ Visicalc
  3. _____ Budgets
  4. _____ Other Specify _____
  _____

20. What are some of the constraints that you see with the use of microcomputers in the classroom?

  1. _____ Requires too much classroom time for each student to work on the computer.
  2. _____ Not enough software for agricultural applications
  3. _____ Requires someone with experience to operate one
  4. _____ Too costly to be practical
  5. _____ Other Specify _____
  _____
  _____

21. Do you see a need for microcomputers in your ag department?

  1. _____ yes
  2. _____ no

---- IF NOT. OMIT QUESTION 22 AND BEGIN WITH QUESTION 23.

22. If yes. why?

  1. _____ Allows one to be more efficient
  2. _____ Better prepares ag students for college
  3. _____ Better prepares ag students for the job market
  4. _____ Other Specify _____
  _____
  _____

23. If not. why?

  1. _____ Too costly
  2. _____ Requires too much time to learn to operate one
  3. _____ Not enough software to aid the program
  4. _____ Students have no interest
  5. _____ Other Specify _____
  _____
  _____

SUPERINTENDENT QUESTIONNAIRE

For each of the eight statements below please circle your response in each of the two columns using the following code:

1 = No emphasis or importance
2 = Little emphasis or importance
3 = Some emphasis or importance
4 = Much emphasis or importance
5 = Great amount of emphasis or importance

	Importance or Emphasis **now** being placed. (circle one)	Importance or Emphasis which **should** be placed. (circle one)
A. Importance of microcomputers to high school record keeping operations.	1 2 3 4 5	1 2 3 4 5
B. Importance of microcomputers to the vocational agriculture department's record keeping operations.	1 2 3 4 5	1 2 3 4 5
C. Importance of microcomputers to the high school students' education.	1 2 3 4 5	1 2 3 4 5
D. Importance of microcomputers to the vocational agriculture students' education.	1 2 3 4 5	1 2 3 4 5
E. Emphasis that your high school instructors place on microcomputer usage.	1 2 3 4 5	1 2 3 4 5
F. Emphasis on the expansion of present microcomputer programs within the school system.	1 2 3 4 5	1 2 3 4 5
G. Emphasis on the expansion of present microcomputer programs within the vocational agriculture department.	1 2 3 4 5	1 2 3 4 5
H. Your placement of value on the use of microcomputers in vocational agriculture classrooms.	1 2 3 4 5	1 2 3 4 5

VITA 𝒜

Charles Leslie Littlefield

Candidate for the Degree of

Master of Science

Thesis: A NEEDS ASSESSMENT OF MICROCOMPUTERS IN VOCATIONAL AGRICULTURAL
CLASSROOMS AS PERCEIVED BY OKLAHOMA VOCATIONAL AGRICULTURE
TEACHERS AND SUPERINTENDENTS

Major Field: Agricultural Education

Biographical:

Personal Data: Born in Lawton, Oklahoma, April 4, 1961, the son of
Mr. and Mrs. B. L. Littlefield.

Education: Graduated from Mineola High School, Mineola, Texas, in
1979; received the Bachelor of Science degree from Texas Tech
University, Lubbock, Texas, in May, 1983, with a major in
Agricultural Journalism; engaged in post-graduaate study
toward the degree of master of Science at Oklahoma State Uni-
versity, Stillwater, Oklahoma, from August, 1983 until May,
1985, at which time the requirements for that degree were
completed.

Leadership Activities: State FFA Vice President, Co-chairman of
National FFA Contests Committee, President of Agricultural
Communicators of Tomorrow, Alpha Zeta, Gamma Sigma Delta, Phi
Kappa Phi, Phi Theta Kappa and Omicron Delta Kappa.