

SOFTWARE APPLICATIONS ON MICROCOMPUTERS IN
SECONDARY MARKETING EDUCATION PROGRAMS

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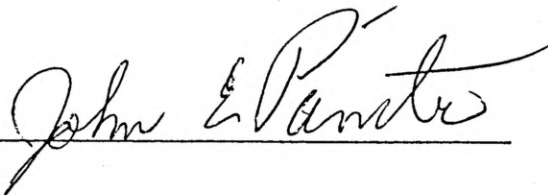
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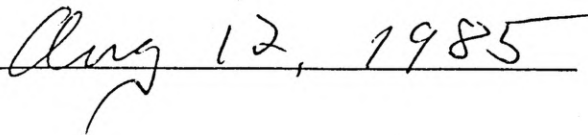


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ABSTRACT

The purpose of the study was to identify the ways that secondary Marketing/Distributive Education Programs are using computers and the specific software employed.

The survey instrument was mailed to 180 National DECA member Marketing/DE Programs which represented 50% of the member programs in the states of MI, ND, SD, WA, VA, and OR. Ninety usable returns were received on which sixty-six instructors indicated that they were utilizing computers in some way.

These replies were tabulated and analyzed. From this data and a review of literature it was concluded that computers are a very new part of the majority of Marketing/DE programs in the states surveyed. The amount of time that most students use a computer for Marketing classes was reported as less than one hour per week.

The most common computers in Marketing are the Apple II series (II, II+, IIe, and IIc) and the software designed to run on these machines. Word Processors, spreadsheets, and simulations are the most common types of software being utilized. The following programs were the most frequently mentioned by name as being used successfully: Appleworks and Applewriter by Apple, the DECA contest series, Enterprise Sandwich Shops from Gregg/McGraw-Hill, Gadgetronics from Southwestern, Jeans Factory from Phillips Petroleum Company, the CDEX training programs, and Free Enterprise from SRA Software.

The recommendations made by the researcher include the following: that provision be made for students to have more hands-on-time, machine purchases for Marketing should reflect the ownership patterns of the local business community and not be based solely on what a school district has or on price, a national clearinghouse should be established to exchange information about computers and software in Marketing, and the types of usage should be expanded. It is also recommended that additional studies be conducted to establish if there is a correlation between usage of computers and enrollment in Marketing classes.

CHAPTER 1

INTRODUCTION

The vocational education areas, especially business related subjects, are now faced with a period of transition from the traditional curriculum to a new one which must integrate microcomputers. Marketing Education as a discipline must begin to prepare its students to enter a world of work where many of the jobs in which they have traditionally placed students are undergoing change. Entry level employees are expected to be better communicators and to be computer literate. Students who are not prepared to use microcomputers will be at a serious disadvantage in getting and keeping meaningful employment.

However, the problem does not seem to be that education is unwilling to change, but rather that there seems to be no logical pattern for schools to follow in incorporating change. Goens in his "tongue-in-cheek" article (1983, 130) points out that schools seem to be getting into the computer age simply as a response to another school's adoption and really have no idea what to do with the machines when they have them. "The Apple-gap, if not closed, can lead to mass computer illiteracy." (Goens:1983, 131) The article concludes that if the school gets the computers then they

are current with the new technology and really don't need the consultant to explain how it is to be implemented. If this attitude is really prevalent, then students probably are not being provided with the best possible education.

Statement of the Problem

The intent of this study was to ascertain specifically what software is being utilized by Marketing Education Programs that have successfully integrated microcomputers. The survey instrument was designed to sample a variety of Marketing Education Programs and to secure data, if any, about what hardware and software is being used and what changes have occurred in the program's enrollment following the adoption and integration of micros. The respondents were asked to give a list of the software that they had used and the results that they had had with it. The results of the survey are presented so that the instructors who are not currently using micros in their classrooms will have some basis upon which to implement micro usage.

Questions to be Answered

A copy of the survey instrument is included as Appendices B and C of this study. The first group of questions (numbers 1 through 5 and number 8) addressed enrollment and general information about the school and the Marketing Program. The instructors were asked to list their

exact enrollments by fall semester for the last four years and the projected enrollment for fall of 1985. They were asked to break down these figures into the categories of Marketing I, Marketing II and Coop. The instructors were also asked to give their average class size and the number of classes of Marketing that they taught each day.

The second section of questions (numbers 6 through 9) addressed the instructor's perception of the future of the micro in the Marketing Education classroom and how it relates to the marketing occupations. What demands by employers, students, and others for computer skills do the marketing instructors anticipate?

The third set of questions (numbers 11 through 16) asked the instructors to identify the hardware that is currently being used in Marketing Education classrooms, how it was obtained and how long has it been in use. This group of questions also asked respondents to detail the amount of time that the machines are available to marketing students during the school day.

The next set of questions (numbers 17 through 20) dealt with the types of use of microcomputers in Marketing classrooms. What types of software are being used? Who is using it--the instructor, the student or both? How much time are students required to spend on the computer per week for their marketing class? The usage categories incorporated into the questionnaire are tutorials, drill and

practice, simulations, electronic blackboards, classroom management, Club management, guidance, and remediation. The instructors were also asked to identify which of the following types of business software that they were using: word processing, data processing, electronic spreadsheets, accounting packages, and integrated software.

The fifth set of questions (the entire second page of the questionnaire) dealt with specific software. The respondents were asked to identify by title and publisher the business types of software that they were using and give a rating of it. They were also asked to list what software they had had success with and what software that they had found difficult to use. Finally they were asked to rate and comment on fifteen different commercial software packages.

Need for the Study

In reviewing the literature available from various sources and after talking to several instructors of Marketing Education from around the State of Montana at the annual DECA Board of Governors Conference in October, 1983, in Great Falls, it became apparent that a study about micros in marketing could be of some use to marketing educators. To do so it should seek to identify the hardware and software being utilized by programs in which enrollments were increasing and which had successfully integrated microcomputers into the curriculum. It appears that

education is being forced to adopt the new technology and that there is not yet any means for educators to communicate their successes and failures in dealing with it. Students are coming to expect computers in all classes and instructors in Vocational Education are going to have to successfully integrate computers and adapt to the changes that they will bring. This study will attempt to document computer usages that have been successful for instructors. Additional research will need to be done in specific topics so that it will be possible to present results that are applicable to all Marketing Education Programs.

Lesgold (1983:252) gives an opinion as to the ultimate worth of microcomputers in education. "In the end analysis, the computer applications to education that matter most are those that reveal to children the structure of their own ideas as well as the structure of the computer's program...such systems should go further and coach the child in developing complex ideas and implementing complex plans." Even though this survey does not presume to be able to give a definitive response to this thought, maybe some light will be added to the body of knowledge about how to incorporate this ideal into the reality of education today.

Limitations of the Study

The survey instrument was sent to a random sampling of Marketing Education teachers at the secondary level. The population base from which these teachers were selected was based on the fact that the authors of the articles about micros in Marketing Education were primarily from MI, VA, WA, OR, and CA. The intent of this study was to obtain maximum information from a limited survey size. This study is descriptive in nature and it is hoped that the results are useful to Marketing Educators who need to know more about microcomputer usage and what specific software can best be used in their programs. The results of this survey are not intended to be generalized to all Marketing Education Programs but are intended only as a resource to those instructors who wish to expand their usage of micros.

Definition of Terms

The following list of terms and definitions have been developed from the sources used by the researcher and are presented to assist the reader. Many of them are used slightly differently in various contexts and this list is presented to provide standardization throughout this paper. One of the problems with any new technology is the lack of common usage of the new terminology which develops to

describe it. The primary sources of these definitions were an Appendix to Tollefson's "Unit Curriculum" and Hativa's article on "Electronic Board."

Business Software

Computer programs designed to be used by business in their everyday operations. Three common types are Word Processors, Data Base Managers, and Spreadsheets. The instructor using this type of software will have to do extensive preparation to make it adaptable to educational objectives.

Computer Assisted Instruction

The computer is utilized as an audio-visual tool by the instructor. Often abbreviated to CAI. Simulations are an example of this usage.

Computer Based Instruction

The computer is utilized as the primary means of instruction for one or more students for a given period of time. Drill and practice and remedial/tutorial activities are examples of this usage. Abbreviated CBI.

Computer Guided Teaching

The computer is used by the instructor to do things for the entire class that cannot be done as efficiently without it. Electronic Blackboards are an example of this type of use. Abbreviated to CGT.

Computer Hardware

The physical input devices (keyboard, disc drive, paddles, etc.), the output devices (printer, plotter, screens, etc.), and the central processing unit that are combined in some fashion to be called a computer.

Computer Literacy

A person who is "computer literate" probably has some idea of the history of computers, how they are utilized by society in general, and, traditionally, a limited introduction to either programming or application use, or both. For this paper, the essential ingredient of "computer literacy" will be an overcoming of the fear of computers by new users.

Computer Managed Instruction

The computer is utilized by the instructor as the classroom manager for keeping student records, generating tests, doing correspondence, and similar activities. Business software is often employed. Students are not using the computer. Abbreviated CMI.

Data Base Managers

Computer programs that allow the operator to manipulate lists of something. Normally are commercially produced. An example is PFS File which can be used on a microcomputer.

DECA

Distributive Education Clubs of America. The co-curricular youth group of Marketing Education.

Information Age

The historical period that is now succeeding the Industrial Age. The normally accepted characteristics include the utilization of computers and other technology, the shift from production-oriented business to the service industries, and greater emphasis upon mental labor with the utilization of robot labor for the drudgery previously performed by unskilled workers.

Instructional Software

Computer programs designed to be used in the classroom. There are a wide variety of types but they all have in common that they have extremely limited commercial use but are designed to be used to teach students about specific subjects. The most common types are simulation, drill and practice, tutorial, and remedial programs.

Keyboarding

Entering data into a computer via a normal typewriter keyboard using the "touch method."

Marketing Education

Secondary and post-secondary programs designed to acquaint students with the world of business through use of classroom instruction, a co-curricular youth organization, and cooperative work experience. The programs are designed to provide students with entry-level skills. Previously named Distributive Education. Curriculum Guidelines are currently undergoing change in response to the changes in technology and the demands by the market place.

Microcomputers or Micros

Smaller computers designed to be used by one operator at a time and to operate only one type of software at a time.

Spreadsheets

Computer programs designed to rapidly perform the types of math computations that can be done using pencil, paper, and hand-held calculators. Normally have a row and column format. Visicalc is an example.

Word Processors or Word Processing Software

Computer programs designed to allow the rapid manipulation of text materials. These are used for rapid production of letters, reports, and similar types of documents. Applewriter and Wordstar are examples.

CHAPTER 2

REVIEW OF LITERATURE

Introduction

There is an overabundance of literature available concerning computers and microcomputers in education. However, there appears to be very little on the specific applications in Marketing Education. The literature does deal in general with the need for effective software evaluation and the need for a system that disseminates the results of that evaluation. A few individual school districts have set up systems that allow teachers in the district to exchange evaluations of software on a systematic basis, but this does not appear to be occurring very frequently. While searching the literature available about computers in education, it became apparent that the general consensus is that computers are not going to disappear from education and that the need today is to improve and integrate their use.

This chapter is divided into seven topics. The literature selected and summarized here is available from the Roland R. Renne Library at Montana State University and/or from the personal collections of several faculty members of the College of Education and the Department of

Business Education and Office Systems of the College of Business.

The topics are:

1. The Future of Microcomputers in Education
2. Areas of Concern about Adopting Micros
3. Justification of Utilizing Micros
4. Future of Micros in Business Education
5. The Application of Micros in Marketing Education
6. Software for Marketing Education
7. Summary

The Future of Microcomputers in Education

"Under Construction--Self-Employed," is a sign that every child should wear. Or, at the very minimum, that every educator should see each time he/she looks at a student (O'Brien: 1983, 112). This concept is the single best reason for microcomputers in education. The micro can aid the teacher in doing something that they have always wanted to do but have never been able to fully accomplish--teach children to think. The computer allows a teacher, with appropriate software, to develop a student's ability to utilize dynamic knowledge (knowledge which consists of building blocks and which leads by itself to new knowledge) (O'Brien: 1983, 111). Lesgold (1983, 247) appears to embrace this concept but warns educators that if computers are nothing more than a novelty to the students, the students quickly will get bored. If computers are used to do things that could not be done without them, then students will utilize them as a tool of learning.

Zahniser (1983, 3) gives three scenarios of what the future of micros may be. The first (optimistic) is that the computer will totally replace the teacher and students will study on their own with no guidance other than their own computers. The second (pessimistic) is that computers will quickly be relegated to the status of programmed learning, open schools, and new math which have all virtually disappeared. The third (realistic) is that the computer will continue to be a part of education as a tool for drill and practice, remediation, tutorials, simulations (which will increase in both complexity and realism) and will also be used as a medium to teach on-the-job application skills. As the technology continues to advance the computer will become an essential tool of instruction as commonplace as the overhead projector and the blackboard (Zahniser: 1983, 55).

Areas of Concern about Adopting Micros

Even though there is a vast potential for computers in education, there are some severe limitations that educators and administrators must keep in mind. Walker ("Reflections:" 1983, 105) lists seven which are paraphrased below:

1. They are only a supplement, they cannot replace conventional education and they are not the cure-all to make bad teachers good.

2. The current microcomputer generation is difficult to use effectively and teachers who are properly trained are not plentiful.

3. Long-term planning is impossible because of the incompatibility of the products of various manufacturers and the uncertainty of the who and/or what will be available next month as well as next year.

4. Because good software is difficult and expensive to produce and is not transportable from one machine to another, it is not plentiful and selection is difficult for the teacher just starting to utilize micros.

5. Because the technology is not yet fully understood it is possible for well-meaning teachers to actually do harm as they attempt to use a micro.

6. Subjects which require student judgement, intuition, improvisation, and creativity are still very difficult to teach using computers because of the level of development of the necessary software.

7. Computers may actually aggravate problems that are facing many school districts today. Some examples of these are equity, school finance and the philosophic decisions being forced upon schools.

These are not meant to be used as justification for not adopting computers, but they should be understood before a school district moves to close the "Apple-Gap." Walker ("Reflections:" 1983, 107) concludes that "[sic] learning to use them [microcomputers and other information technologies] wisely and well is one of the major challenges we face."

A study done by Campbell (1983, 3) amplifies Walker's seventh concern. Computers actually do aggravate the equity problems and financial problems faced by both state and local school administrations. Male students in secondary schools in wealthier districts have significantly more computer time and hands-on experience than students from any

other socio-economic group or than students from poorer districts. An additional problem is that the higher the socio-economic status of the student the more likely that he/she is going to be able to use the computer in higher level uses with more sophisticated software.

Yarbo (1983, 3) points out that for schools who have not yet integrated the computer into their curriculums, it may be best to wait for a while. A school should pursue extensive staff development and education, answer the philosophical questions about how they will use micros, and make sure that buying sufficient micros to be effective will not mean short-changing other areas before they purchase. Schools should not buy just to be able to say that they have computers but should make their purchase decisions to accomplish specific educationally sound goals and meet realistic expectations. Thomas (1983, 16) gives an "Instructional Requirements Matrix" that should be used as an aid by educators in making their decisions about purchasing a microcomputer system for their schools. [This matrix is reproduced in this paper as Appendix D.] By using this system or something similar, schools will be more likely to avoid making major errors.

An issue of major concern to business educators (and other vocational subject areas) is to ascertain what the demands of their students' future employers will be concerning computer education. Should students be able to program and will they need to be able to do so; should they

be exposed to a variety of hardware and software or should they know one system in depth even though they will most likely not use it on the job; and what specific application skills should they have? Each Business Education Department should answer these questions for its own market and then decide what the curriculum should be. Then, and only then, can the department choose appropriate software and finally hardware (Panagoplos: 1983, 33-35).

Both Lesgold (1983, 248) and Fary (1984, 6) address Walker's concern about the availability of qualified teachers. Lesgold from the position that the only areas that a teacher should attempt to teach using the computer are those that he/she cannot teach better by some other means. Fary specifically addresses the issue of staff computer literacy. She feels that all staff members should be literate and that to accomplish this goal all teachers should become knowledgeable about the strengths and weaknesses of the computer in their specific area of education, be well informed concerning the social and ethical issues about usage of computers in both society and in education, and they should have enough of an understanding of both programming and applications that they do not fear the computer. Staff members also need to know how to judge both software and hardware as applied to education in their fields.

Justification of Utilizing Micros

T. H. Bell, in a speech delivered in 1982 while he was Secretary of Education, stated that the schools of today must include "entrepreneurship skill development." He also quoted President Reagan who said that students must be educated to make the "...shift from dead-end jobs and low demand skills to the growth areas of high technology and the service economy." He also quoted David Birch, professor at MIT as saying that "...we pay for 2 school systems in the U.S., the public system and the job market...We must begin training people in the schools for the jobs they will be doing in the real world." (Bell: 1982, 3) These quotations point out that at least one major leader in education perceives that the public education system has not yet adapted to the Information Age.

Reece, in a study done with randomly chosen small businesses in the Richmond, Virginia, area found that while most of them had not adopted microcomputers as a management tool they were, with very few exceptions, planning to do so in the near future. The results of this study also pointed out that only a few of the businesses studied had yet defined the changes in the entry level skills they would expect of their new employees after microcs became an integral tool within their businesses. All agreed, however, that there would be significant changes. The conclusions of

the study include the observation that big businesses now require entry-level employees to have computer application skills and that small business will soon follow suit (Reece: 1983).

The skills most needed by small business managers to avoid being one of the 80% of new businesses which fail in the first five years are basic marketing, personal selling, planning and forecasting, accounting, tax planning, financial controls, record keeping, and theft prevention. Even though managers actually in the field do not express strong interest in taking courses to acquire these skills they do feel that students should be learning them (Bart: 1983). All of these activities can be done either faster or more efficiently (or both) through applications of micros and appropriate software. Therefore, students in Marketing Education who are being trained primarily to work in and/or own small businesses should have these skills emphasized and be exposed to the micro as a means to develop their skills more efficiently.

Kalik took the results of more than fifty studies about the value of computers in education and applied several statistical tools to them to find out if there was statistically significant patterns shown. This meta analysis concluded that there are several benefits of using computers as tools in the classroom. Students do learn more, they learn it faster, and they show an improved

attitude towards the subject as compared with students not utilizing a computer (Kalik, 1983). It is significant to note that he found that the greatest single benefit of the students using a computer was in their attitude towards the computer itself. The students who used one had a vastly better attitude than those who did not.

Future of Micros in Business Education

Three authors gave the same basic philosophy on what the future role of Business Education Departments should be concerning student education on and with microcomputers (Ruby: 1983; Panagoplos: 1983; and Maxwell: 1983). They stated that the Business Education Department should be the major source of training of keyboarding and data entry skills, that application skills should be taught by Business Education, and that all students should receive computer literacy courses through Business Education. The computer should be taught as a tool and its applications emphasized. They feel that students need to learn the above skills to meet employers' requirements rather than learning how to program. This emphasis is in keeping with the vocational nature of Business Education and is a logical outgrowth of that emphasis. Rawers (1983) gives three very detailed descriptions of how this philosophy has been successfully implemented at Sweet Home, Alsea, and Union High Schools in Oregon.

Marketing Education, as a specific subject area within Business Education, is only just starting to respond to the challenges of the microcomputer. Harris (1983, 6) cites statistics which indicate the changing job market and point to Marketing Education's need to shift emphasis towards technical skills and competencies. He further explains this need for a shift in emphasis through use of the Government's statistics that point to the contemporary trend for most workers to need to be continually retraining throughout their working lives (the rapidity that jobs become obsolete). He feels that Marketing Education should be among the leaders in providing this continuing retraining. Both Howerton (no date, 30) and Lynch (1983, 31-32) emphasize that marketing must adapt to the new technology by training students to use the equipment that they will be expected to be operating on the job.

"The 'Age of Information' is upon us. We must as educators bring this new age to our classroom with the same speed that the market place is developing new products daily. If we do not, it will pass us by"(Titan: 1983, 28) Titan continues his article with a detailed explanation of how he has accomplished this. His enrollment is expanding, he has been able to expand his classroom facilities, and his students are adapting well to the curriculum changes. The primary thrust of his program is to teach students how "to

use their brain power and knowledge more effectively and efficiently" (Titan: 1983, 28).

The Application of Micros in Marketing Education

There are a multitude of articles concerning specific applications of microcomputers in education, many concerning applications in Business Education, and a few concerning applications in Marketing Education. The specific software for doing so is not frequently listed and very little evaluation of specific software packages is available. The uses of micros are frequently categorized into the following classifications:

1. Computer Assisted Instruction (CAI) and/or Computer Guided Teaching (CGT)
2. Computer Based Instruction (CBI)
3. Computer Managed Instruction (CMI)

These categories will be used to allow grouping of information from the various articles that were selected for this review even though all of the sources do not define each category in exactly the same way.

CAI and CGT utilize the computer as an audio-visual aid for the instructor. It can be used with one student, many students, or a whole class. The types of activities included are the more complex simulations such as "Lemonade Stand" and "Sandwich Shop," electronic blackboards, store inventory control, and artificial intelligence (which automatically checks student errors on specific programs and

selects necessary remediation). Also included in this category is business software such as word processors, spread sheets, accounting packages, and data base managers which are used to allow students to practice actual business applications (Titan: 1983, 29; James: 1982, 5; Heath, "Microcomputers:" 1982, 4; Hativa: 1984, 51; Tamashiro: 1983, 4).

The second category of use, CBI, consists of drill and practice, tutorial, and remedial types of educational software. This was the first type of usage of computers in the classroom and requires the lowest skill level by the instructor because the program itself manages the learning situation. This usually is done with one (at most 2 or 3) student using a computer while the rest of the class is involved in a completely different learning activity. Because of the relative lack of complexity of the software, teachers can often write their own programs for a specific topic and/or student. This type of usage rapidly loses its effectiveness as the novelty of the use wears off and the students become more sophisticated about computers and their usage (Titan: 1983, 29; James: 1982, 6; Heath, "Microcomputers:" 1982, 5; Oklahoma: 1983, 2).

CMI is where the computer is used by the instructor to simplify, speed, and improve the quality of the work they must do to operate a classroom and cooperative program. Depending upon each individual teacher's circumstances and

training, the computer can be used to keep financial records; record and calculate student grades; maintain a data base of student employment records, training stations, and/or advisory committee members' names and addresses; produce, through word processing, necessary forms and letters; and manage student competition. Teachers can also produce lesson plans, handouts, tests, and other written classroom documents faster and more accurately. Even if teachers do not feel confident enough in their ability and skills to teach their normal curriculum materials using the computer or have only limited access to computers, they can and should utilize a computer to aid in completing this routine work that can become overwhelming at times. Their program's success is often dependant upon performing these tasks and a properly used computer can allow them to do so and still have time to teach students (James: 1982, 7; Heath, "Microcomputers:" 1982, 5; Hartman: 1982: 3; Smith: 1983, 5; Varty: 1983, 1-3).

A specific sub-group within CMI is career guidance. With the material available today and the easy access in most schools to at least one micro, this is a must. Students can research possible career paths on their own, quickly and efficiently, and probably get better and more accurate feedback than is possible with only a teacher or counselor who may often be biased (Heath, "Microcomputers:" 1982, 6; Oklahoma: 1983, 50; Smith: 1983, 6).

The survey instrument for this study was designed with these categories foremost in mind. It was designed to get data to help classify into which of these categories most of the software that is being used belonged. This categorizing of software can be an aid in the development of plans for its integration into existing curriculums.

Software for Marketing Education

The documents pertaining to this topic are divided into two groups. The first group gives some ideas of how instructors should go about evaluating software. The second is a brief description of the documents which give a listing of software by name and publisher that are suggested for use by Marketing Educators.

An instructor who is contemplating the use of a given piece of software needs to make a judgement on several issues before purchasing and using the package. This should be done using a formalized process that is standardized throughout the district and, if possible, the state, by educational discipline. The recommended procedure involves at least four steps: after getting it from the publisher on a trial basis go through it answering as many questions correctly as possible, go through it again making as many mistakes as possible, have a student go through it, and finally, complete an evaluation form noting the strengths and weaknesses of the program. This process is necessary

because software development has not kept pace with technological developments, because of incompatibility among various brands of hardware, because of high cost and low cost-effectiveness (cheaper ways to do the same thing without using a computer), and because of the limited communication among users which would help to prevent poor software from being sold. Another concern is that the software may generate pretty pictures on the screen or printer but may not be well documented or meet the educational objectives (Roblyer: 1983, 23-33; Holznagel: 1983, 33; Walker, "Computers:" 1984, 6; Chase: 1984, 3).

A form developed by Oregon State University (1983, 32-35) is reproduced as Appendix E of this paper. It contains the instructions for use and all of the necessary information for an instructor to evaluate a software package and convey the evaluation to others. If each instructor currently using microcomputers in his/her classroom would complete this form for each piece of software that they have and each piece that they preview; and if a central filing and retrieval system were established by the district and/or state coordinators in each discipline, many of the problems a district or a specific teacher faces about computer usage could be dealt with more effectively and the usage of the computer would begin to achieve its potential (Oregon: 1983, 38).

Because of responses received to letters sent to Marketing Education Coordinators and Marketing Educators at Universities in several states [letters and replies are contained in this paper as Appendices F through N], two listings of software usable by Marketing Educators were located. Heath (Sourcebook: 1984) contains an exhaustive listing of programs that might be applicable. The book is arranged alphabetically by titles and gives a brief description of each program and the publisher's name, address, phone and price. It clearly states that it is simply a listing and no evaluation is given or intended. Anderson (1982) gave a handout to the audience during a conference that listed by title approximately 50 software packages. This handout was contained in a "Unit Curriculum" prepared by Tollefson (1983). Titan (1983, 28-29) also includes several programs by name that he has used successfully. From these sources and from discussions with instructors of Marketing Education in Montana, the list of software for the survey was developed.

Summary

Time Magazine named the computer as "Man of the Year" for 1983. This action is the best summary of what the literature about computers in education contains. The computer is here, it is going to increase in importance throughout all segments of society and education must adapt.

It is hoped that the computer will be the medium whereby education will take a leadership stance by moving quickly to integrate microcomputers into the existing curriculum. The advice given by James (1982, 16) for Marketing Education is very specific: "If we don't get with the technology program and see what is happening in the business world in relation to microcomputers, someone else is going to step in and do it for us. If that happens, then that is just one less reason for keeping our discipline." Because the literature is still limited, the obligation for Marketing Educators who have been successful in using micros is to share their successes with their fellow teachers.

CHAPTER 3

PROCEDURES

Introduction

The main pupose of this study was to determine what software, by name, was being used by Marketing Education Instructors who have successfully integrated microcomputers into their curriculums. The procedures used to accomplish this purpose were divided into eight stages. Following an initial search of the literature available to find out if such research had been done and published, a letter was sent to Marketing Educators which sought to identify leaders in the implementation of micros. The responses to those letters then suggested sources that were available to complete a more exhaustive review of literature. After completing that review, the study continued as follows: the development of the survey instrument, the selection of the population and the sample to whom the survey instrument was to be sent, the submission of the questionnaire to the selected instructors, the analysis of the data and presentation of the findings, and the presentation of the conclusions and recommendations.

Review of Literature

Material for the Review of Literature was obtained from the Roland R. Renne Library, Montana State University; from the Business Education and Office Systems Department's Curriculum Library; from the private collections of Dr. Floyd C. Frost and Dr. Daniel G. Hertz (Professors in the Business Education and Office Systems Department); from the private collection of Dr. Albert Suvak (Director of the MSU Testing Service); from the private collection of Dr. Lawrence W. Ellerbruch (Professor in the Elementary Education Department); and from the private collection of Dr. Norman L. Millikin (Assistant Dean of the College of Business). Special thanks to Dr. Millikin for his aid in obtaining Heath's Sourcebook because this document was the major source of the software titles that were listed in the survey instrument. The lists of names and addresses that were used in conducting this research were obtained with Dr. Millikin's aid from the National Office of DECA.

Development of the Survey Instrument

The preliminary draft of the survey instrument was developed utilizing the most commonly mentioned items (both software and hardware) that the researcher encountered in the review of literature and from conversations with educators who are currently using microcomputers in

education. The items were selected to provide maximum flexibility for participants to document both their successes and failures. This preliminary draft was then reviewed by Dr. Millikin and then revised by the researcher. The revised instrument was then prepared for mailing to the participants in the survey under a cover letter. The letter and survey instrument are included in the Appendices to this paper.

Selection of Participants

The choice of the four states of Oregon, Michigan, Virginia, and Washington was made to maximize the potential return of the questionnaires from educators who had at least attempted to integrate microcomputers into their Marketing Education Programs. Many of the articles about microcomputers in Marketing Education that had been located during the review of literature were written by educators in these states. These people seemed to be encouraging the Marketing Educators in their states to integrate micros and to have the most information about the "how" and "why" of integrating micros. It was therefore the assumption of the researcher that the secondary teachers in Marketing Education would have been more likely to have attempted to adopt micros than would be the case in the other states where that support appeared to be lacking. The states of North Dakota and South Dakota were selected because the

researcher felt that the information about the usage of micros would be more representative of the type of problems that are being faced here in Montana. Therefore, the population from which the samples were drawn was biased and the results cannot be generalized to instructors anywhere else.

The specific participants were then randomly selected from lists of Marketing Education Programs which belonged to National DECA within the states selected. A hand written list of names and addresses was obtained from National DECA. Each usable name was numbered consecutively and 50% of them were selected using a random number table. A total of 180 programs were selected and the questionnaire, cover letter, and a stamped self-addressed envelope were sent to each one on May 5, 1985.

After five weeks 92 had been returned. Because of the likelihood of those who had not replied not having used micros and because of the likelihood that the school year had ended and the Marketing Educators would not be available, no follow-up was done. It was concluded that the responses of the 50% that had been returned would be sufficient.

Analysis of Data and Presentation of Results

Tables were constructed from the data derived from the questionnaires returned. The data were determined to be

nominal in nature and therefore best analyzed using percentages. The data is grouped by state and based on the number of replies received. The total of all replies are then presented and comparisons are drawn. The tables of data and their explanations are contained in Chapter 4 of this study.

From the summary tables it was possible for the writer to draw some conclusions. These include the types of hardware that are most commonly used, the most frequent types of use of the computers, and the software that has been the most useful in Marketing Programs. None of the conclusions should be applied to any specific program but they can serve as guidelines for instructors who are beginning to integrate the micro into their curriculums and who have no idea of what will or will not work. The conclusions must not be construed to have any predictive validity about the future of micros in any particular program. The conclusions are contained in Chapter 5 of this study.

CHAPTER 4

FINDINGS

Introduction

This chapter presents tabulations and interpretations of the data obtained from the survey of Marketing/DE programs. The tabulations of data obtained in response to the questions on the first page of the survey instrument are presented in each table by state and by total of all responses. Because of the limited amount of data obtained in response to the questions concerning specific software packages (second page of the survey instrument), the results are not tabulated but are presented in narrative form. The first figure shown in each column in Tables 2-21 are the number of responses to the question followed by a slash (/) and the percentage of responses received from each state. Some percentage totals may not equal exactly 100% because of rounding to tenths of a percent. Other tables, where noted, may contain more responses than questionnaires returned because of multiple answers, some by design of the question where desired by the researcher and some by misunderstanding of questions by the respondent.

The tabulations of data are not necessarily in the same order as the questions because the order of the questions was selected to maximize the return ratio. No data is reported for question five because of an apparent misunderstanding of the question by the respondents and/or their failure to respond at all. The researcher also felt that the data obtained in response to question eleven were not useful by itself and no logical correlation appeared possible, therefore, it is not included.

Summary of Respondents

The questionnaire was mailed to 180 schools. Fifty percent of the usable names received from National DECA were randomly selected from each state through use of a random number table. The numbers sent to each state, the number of returns, the number of usable returns, the corresponding percentages, and the state abbreviations that are used throughout the rest of this paper are shown in Table I on the following page.

TABLE 1

SUBJECT: Mailing and Response Data

State	Number Sent	Number Ret'd	%	Number Usable	%
Michigan (MI)	40	18	45	18	45
North Dakota (ND)	9	6	66.7	6	66.7
Oregon (OR)	19	10	52.6	10	52.6
South Dakota (SD)	10	6	60	6	60
Virginia (VA)	57	31	54.4	30	52.6
Washington (WA)	45	21	46.7	20	44.4
Totals	180	92	51.1	90	50

The return rates as shown above did not follow the pattern expected by the researcher. The return rates from both Michigan and Washington were especially low and the data obtained (as shown later) did not support the thought that these programs were especially high in the use of computers. A partial explanation for the low rate may be that some schools to which questionnaires were sent may have already dismissed for the summer, but this is not known.

General Background Information

The data contained in this section is taken from the responses to the first ten questions. Most of the respondents were willing to answer all of these questions. These questions were designed to obtain information about the program in general and were not dependant upon the instructor's using a computer.

TABLE 2

SUBJECT: Is the Instructor using Computers in his/her Marketing Program?

STATES:	MI	ND	OR	SD	VA	WA	TOTAL
# of RESPONDENTS:	18	6	10	6	30	20	90
Yes	12/66.7	6/100	10/100	6/100	17/56.7	15/75	66/73.3
No	6/33.3	0	0	0	13/43.3	5/25	24/26.7

Two points about the data from the State of Virginia should be noted. Most replies were received much later than from other states and, as shown above, a large percentage (43.3%) are not using computers. The high return rate coupled with the high non-user percentage suggests a high degree of professionalism and willingness to cooperate with research among the teachers in Marketing Education in Virginia that was not shown from other states and was unexpected by the researcher.

TABLE 3

SUBJECT: Location of School

STATES:	MI	ND	OR	SD	VA	WA	TOTAL
# of RESPONDENTS:	18	6	9	6	30	20	
Urban	4/22.2	2/33.3	2/22.2	1/16.7	1/3.3	2/10	12/13.5
Suburban	4/22.2	0	2/22.2	0	11/36.7	10/50	27/30.3
Small City	6/33.3	4/66.7	3/33.3	2/33.3	2/6.7	7/35	24/27
Rural Area	4/22.2	0	2/22.2	3/50	16/53.3	1/5	26/29.2

Three (25%) of the respondents from the Dakotas viewed themselves as living in an urban area. Also, no one in ND responded as being from a rural area. These states were picked because of their rural nature and low population density to allow this research to examine an area as similar to MT as possible. Other than this anomaly and the low number of responses from urban schools in MI, VA, and WA, the overall results show a relatively even balance between Urban, Suburban, Small City, and Rural schools.

TABLE 4

SUBJECT: Number of Marketing/DE Classes Taught Daily by the Respondent

STATES:	MI	ND	OR	SD	VA	WA	TOTAL
# of RESPONDENTS:	18	6	10	6	30	20	90
One	1/5.6	0	0	3/50	0	0	4/4.4
Two	8/44.4	0	1/10	1/16.7	5/16.7	5/25	20/22.2
Three	6/33.3	2/33.3	3/30	2/33.3	17/56.7	8/40	36/40
Four	2/11.1	4/66.7	4/40	0	7/23.3	7/35	24/26.7
Five or More	1/5.6	0	2/20	0	1/3.3	0	4/4.4

Only four respondents indicated that they taught less than two classes per day. Of the four who reported teaching five or more, three (one in each MI, OR, and VA) indicated that they were not responsible for any cooperative education students and that the school had a teacher who was responsible for all coop students.

TABLE 5

SUBJECT: Average Class Size

STATES:	MI	ND	OR	SD	VA	WA	TOTAL
# of RESPONDENTS:	18	6	10	6	30	20	90
Less than 15	0	2/33.3	0	3/50	10/33.3	0	15/16.7
15-20	4/22.2	3/50	5/50	2/33.3	16/53.3	5/25	35/38.9
Over 20	14/77.8	1/16.7	5/50	1/66.7	4/13.3	15/75	40/44.4

The data indicates that MI and WA have larger class sizes and tend to teach fewer marketing classes than those in the other states. ND, SD, and VA all show small class sizes with 15 out of 42 programs (35.7%) having average classes of less than 15 students. In VA this presents an interesting question for further study: Is there a cause/effect relationship between the low number of programs using computers and the small class size?

TABLE 6

SUBJECT: Students Seeking further Education beyond High School

STATES:	MI	ND	OR	SD	VA	WA	TOTAL
# of RESPONDENTS:	18	6	10	6	30	17	87
Less than 15%	2/11.1	0	1/10	0	7/23.3	0	10/11.5
16-30%	2/11.1	0	1/10	0	9/30	4/23.5	16/18.4
31-45%	4/22.2	0	4/40	0	4/13.3	2/11.8	14/16.1
46-60%	4/22.2	2/33.3	3/30	2/33.3	3/10	5/29.4	19/21.8
61-75%	1/5.6	3/50	1/10	3/50	5/16.7	4/23.5	17/19.5
Over 76%	5/27.8	1/16.7	0	1/16.7	2/6.7	2/11.8	11/12.6

This wide variety of answers to this question and the lack of consistency within the states except the Dakotas raises more questions than it answers. How many students from Marketing and other Vocational Programs actually do seek further education? The figure frequently cited by professors here at MSU is that more than half of all high school students seek further education of some sort after

high school graduation. Even though 19 (21.8%) of the respondents selected this range (and this was the most often picked range) there appears to be a wide variety of opinion among the respondents to this survey.

TABLE 7

SUBJECT: Department Responsible for Teaching Computer Literacy

STATES:	MI	ND	OR	SD	VA	WA	TOTAL
# of RESPONDENTS:	18	6	11*	5	33**	20	93
Math	6/33.3	1/16.7	5/50	1/20	12/36.4	4/20	27/29
Business	8/44.4	3/50	1/10	1/20	14/42.2	10/50	37/39.8
Other (details below)	4/22.2	2/33.3	5/50	3/60	7/21.2	6/30	27/29
Both Math & Bus.	2/11.1	2/33.3	3/40	2/40	2/6.1	3/15	14/15.1
Computer Science			1/10	1/20	4/12.1	1/5	7/7.5

* Two responses on one survey							
** Two responses on three surveys							

From this data it appears that no one discipline in most of the states surveyed has really taken the lead in computer education. The responses appear to imply that most schools have not yet adopted the computer as a subject in-and-of itself but rather have let whoever was interested teach it.

TABLE 8

SUBJECT: Cooperative Employers Requiring Computer Skills of Cooperative Ed Students

STATES:	MI	ND	OR	SD	VA	WA	TOTAL
# of RESPONDENTS:	17	6	8	5	30	20	86
Less than 10%	16/94.1	5/83.3	5/62.5	5/100	18/60	12/60	61/70.9
10-25%	1/5.9	1/16.7	1/12.5	0	7/23.3	3/25	13/15.1
26-45%	0	0	1/12.5	0	4/13.3	2/10	7/8.1
46-70%	0	0	1/12.5	0	0	2/10	3/3.5
Over 70%	0	0	0	0	1/3.3	1/5	2/2.3

TABLE 9

SUBJECT: Pattern of Change in Demand for Cooperative Ed Students with Computer Skills

STATES:	MI	ND	OR	SD	VA	WA	TOTAL
# of RESPONDENTS:	16	6	8	5	28	20	83
Increasing	9/56.3	2/33.3	5/62.5	2/40	7/25	6/30	31/37.3
Decreasing	0	0	0	0	0	0	0
Remaining Constant	7/43.8	4/66.7	3/37.5	3/60	21/75	14/70	52/62.7

Sixty-one (70.9%) respondents said that less than ten percent of their employers are requiring students to have computer skills and fifty-two (62.7%) indicated that they do not feel that more employers will be requiring them soon. This appears to be in direct conflict with published

articles that more and more business are utilizing computers and that they are requiring employees with skills to operate them. Only twelve teachers (13.9%) indicated that 25% or more of their employers were requiring computer skills and all of these were from WA, OR, and VA.

TABLE 10

SUBJECT: Will Computer Skills be Needed in the Future for Employment?

STATES:	MI	ND	OR	SD	VA	WA	TOTAL
# of RESPONDENTS:	18	6	10	6	30	20	90
Yes	13/72.2	6/100	6/60	3/50	26/86.7	14/70	68/75.6
No	5/27.8	0	4/40	3/50	4/13.3	6/30	22/24.4

The responses tabulated in this table sharply contrast with the data presented in Tables 8 and 9. Sixty-eight (75.6%) of the respondents felt that computer skills will be needed in the future for students to obtain employment in the marketing occupations. As shown in Table 11 below, 23 (85.2%) of the 27 who gave a time frame for this requirement said five years or less. No definite answers are possible from this survey but a question does present itself: Why are cooperative employers not requiring computer skills of cooperative students and yet Marketing Educators perceive an increasing need for employees with computer skills?

TABLE 11

SUBJECT: How soon will Skills be required if they will be required

STATES:	MI	ND	OR	SD	VA	WA	TOTAL
# of RESPONDENTS:	8	3	4	0	5	7	27
Now	0	0	1/25	0	0	0	1/3.7
1 Year	0	1/33.3	0	0	0	1/14.3	2/7.4
2 Years	1/12.5	1/33.3	1/25	0	3/60	1/14.3	7/25.9
3 Years	1/12.5	0	1.25	0	0	0	2/7.4
5 Years	4/50	1/33.3	1/25	0	1/20	4/57.1	11/40.7
6 Years	1/12.5	0	0	0	0	0	1/3.7
10 Years	1/12.5	0	0	0	1/20	1/14.3	3/11.1

TABLE 12

SUBJECT: Comparison of Answers about Computer Usage
in Program and about Demand for Computer
Skills for Future Employment

Respondents answering "Yes" to Both Questions:	46/51.1
Respondents answering "Yes" to Using Computers and "No" to increasing Future Demand:	19/21.1
Respondents answering "No" to Using Computers and "Yes" to increasing Future Demand:	15/16.7
Respondents answering "No" to Both Questions:	10/11.1
TOTAL:	90/100

Because of the similarity of the data contained in Table 2 and Table 10, a possibly misleading conclusion could have been drawn: Those teachers who are not using computers justify their not using them by stating that they do not feel that computer skills will be needed. By simply posting the responses to both questions it is very apparent that this is not the case. Only ten teachers (11.1%) responded "No" to both questions. Therefore, there is probably no validity to the conclusion stated above. These areas do not appear related.

Computer Usage in Marketing Education

This section presents the data obtained from answers to question 11-17 on the survey. The Marketing Instructors were asked about their equipment and how it was obtained and general usage questions. A total of 66 questionnaires were returned by teachers who were using computers, however, not all of them answered all questions. Tables 13 and 14 deal with sources of funds, table 15 with time, table 16 with brands of hardware and Table 17 with general usage patterns.

TABLE 13

SUBJECT: Sources of Funds for Computer Hardware

STATES:	MI	ND	OR	SD	VA	WA	TOTAL
# of RESPONDENTS:	12	6	10	4	16	15	63
Federal and/or State	8/66.7	4/66.7	3/30	2/50	6/37.5	3/20	26/41.3
Local School District	3/25	2/33.3	3/30	2/50	7/43.8	8/53.3	25/39.7
Grant	1/8.3	0	1/10	0	0	2/13.3	4/6.3
DECA/Student Funds	2/16.7	0	4/40	0	3/18.8	3/20	12/19

TABLE 14

SUBJECT: Sources of Funds for Computer Software

STATES:	MI	ND	OR	SD	VA	WA	TOTAL
# of RESPONDENTS:	11	7	11	4	16	13	62
Federal and/or State	2/18.2	4/57.1	1/9.1	1/25	8/44.4	2/15.4	18/29
Local School District	7/63.6	3/42.9	5/45.5	3/75	7/38.9	5/38.5	30/48.4
Grant	0	0	1/9.1	0	0	0	1/1.6
DECA/Student Funds	2/18.2	0	4/36.4	0	3/16.7	6/46.2	15/24.2

The above tables point out that funds from Grants have not been significant in the obtaining of either hardware or software for Marketing Programs. Federal and/or State funds were most significant in obtaining hardware and Local funds were more significant in obtaining software. Two notable

exceptions to this pattern are the low level of usage of Federal and/or State funds for hardware in WA and the very high level of usage of DECA/Student Funds for software, also in WA. Also notable is that the Dakotas show no use of Grants or DECA/Student funds for any hardware or software purchases.

TABLE 15

SUBJECT: How Long Computers have been used in Marketing

STATES:	MI	ND	OR	SD	VA	WA	TOTAL
# of RESPONDENTS:	10	6	10	4	17	14	61
1 Year	3/30	3/50	3/30	1/25	11/64.7	5/35.7	26/42.6
2 Years	4/40	2/33.3	4/40	2/50	4/23.5	6/42.9	22/36.1
3 Years	2/20	1/16.7	2/20	1/25	1/5.9	1/7.1	8/13.1
4 Years	0	0	1/10	0	1/5.9	2/14.3	4/6.6
5 or More Years	1/10	0	0	0	0	0	1/1.6

This table shows an increasing rate of acquisition of computers for Marketing Programs. The largest number of programs (26/42.6%) have had machines one year, the next largest number (22/36.1%) two years, and on through the Table. The relatively short time that most programs have had computers available helps to explain the data presented later in this chapter about the use of specific software. Most of the respondents appear to not have had a computer long enough to have been able to fully integrate it into

their programs, and, therefore, were unable to fully respond to the questions concerning specific software.

TABLE 16

SUBJECT: Types of Hardware Available to Program*

STATES:	MI	ND	OR	SD	VA	WA	TOTAL
# of RESPONDENTS:	12	6	10	6	16	15	65
Apple II series	6/50	5/83.3	10/100	4/66.7	9/56.3	11/73.3	45/69.2
Other Apple	0	0	0	0	0	1/6.7	1/1.5
Commodore	1/8.3	0	1/10	0	0	0	2/3.1
Radio Shack	3/25	0	2/20	1/16.7	7/43.8	3/20	16/24.6
IBM and Compatable	1/8.3	0	0	0	0	0	1/1.5
Mainframe Terminals	0	0	1/10	0	0	0	1/1.5
Other	1/8.3	1/16.7	1/10	1/16.7	0	1/6.7	5/7.7

* Some programs reported more than one type resulting in more than 100% for some states.

The Apple II series computers (Apple II, Apple II+, Apple IIe, and Apple IIc) are the models of hardware used in 45 out of 65 programs (69.2%). Radio Shack TRS-80 Computers are the next most popular with 24.6% (16 programs). All other brands including IBM are used in less than 20% of the programs. It would be interesting to find out why the IBM has not been selected by more programs--especially in light of its popularity with small businesses.

TABLE 17

SUBJECT: Usage of Hardware

STATES:	MI	ND	OR	SD	VA	WA	TOTAL
# of RESPONDENTS:	11	6	10	4	15	13	59
Marketing has Exclusive Right to Use Computers	8/72.7	4/66.7	6/60	1/25	10/66.7	11/84.6	40/67.8

Students Required to Use less Than one Hr/WK	8/72.7	6/100	10/80	4/100	12/80	12/92.3	50/84.7

Do Not Require Programming	11/100	1/16.7	10/100	3/75	15/100	12/92.3	52/88.0

More than 67% of the Marketing Programs responding have at least one machine available for their exclusive use. This will probably lead towards increased and expanded usage in the classroom. The extremely high percentage (84.7%) of programs that the students use micros less than one hour per week is an additional indicator of the newness of the computer in Marketing and this amount of time will probably increase as more machines become available and the instructors have more experience. Eighty-eight percent of the respondents do not require students to be able to program which reflects the trend to application usage rather than programming by the business and individual user. It

appears that few instructors expect their students to need programming skills for their jobs in marketing occupations.

General Types of Software Utilized

The following four tables summarize the usage of micros as reported by the respondents to the questionnaire. All of the instructors who returned the questionnaire and indicated that they used micros (66) completed this section of questions. They were asked to check any item that applied to their usage as part of their Marketing Program. Therefore, within Tables 18 through 21, any attempt to total vertically would be meaningless. The numbers and percentages shown indicate how many of the respondents from that state utilize the computer in this manner. These responses are the primary basis for the conclusions and recommendations presented in Chapter 5 of this study.

TABLE 18

SUBJECT: Instructor Usage

STATES:	MI	ND	OR	SD	VA	WA	TOTAL
# of RESPONDENTS:	12	6	10	6	17	15	66
Gradebook, Tests, Plans	6/50	4/66.7	5/50	3/50	8/47.1	6/40	32/48.5
Word Proc., Data Proc.	6/50	2/33.3	5/50	4/66.7	11/64.7	13/86.7	41/62.1
DECA Management	5/41.7	2/33.3	4/40	6/100	3/17.6	6/40	26/39.4
Store Management	8/66.7	5/83.3	6/60	1/16.7	8/47.1	8/53.3	36/54.5

In all states except the Dakotas, the most frequent type of use is word processing and data processing which would utilize business software and not software designed for education. Also, this type of software is normally included in the purchase of a microcomputer and does not require additional funds. Approximately half of the respondents indicated that they were using software for student store management, some of which would have been designed especially for that purpose and some of which would have been designed for business in general. Also, about half of the respondents are using software designed specifically for gradebooks, lesson plans, and testing. In comparing this data to that contained in later tables and taking into account the relatively short time many of the programs have had computers, it appears that these types of usage are where most instructors start.

TABLE 19

SUBJECT: Student and Instructor Usage

STATES:	MI	ND	OR	SD	VA	WA	TOTAL
# of RESPONDENTS:	12	6	10	6	17	15	66
Career Guidance	3/25	2/33.3	2/20	1/16.7	6/35.3	6/40	20/30.3
Store Management	7/58.3	5/83.3	6/60	1/16.7	8/47.1	7/46.7	34/51.5
DECA Management	4/33.3	3/50	2/20	1/16.7	3/17.6	3/20	16/24.2

The comparison of this data to that presented in Table 18 indicates that over half of the instructors who are using micros are not only using them to manage their stores, but also are allowing the students to participate in that usage. Eight instructors who checked "Career Guidance" wrote in that they were allowing students to use word processing to prepare letters of application and resumes. Four instructors who marked "DECA Management" indicated that this was for preparation for competitive events.

TABLE 20

SUBJECT: Instructional Uses of Educational Design Software

STATES:	MI	ND	OR	SD	VA	WA	TOTAL
# of RESPONDENTS:	12	6	10	6	17	15	66
Drill and Practice	3/25	5/83.3	4/40	3/50	5/29.4	3/20	23/34.8
Tutorial	3/25	1/16.7	3/30	1/16.7	4/23.5	4/26.7	16/24.2
Simulation	5/41.7	6/100	9/90	2/33.3	12/70.6	10/66.7	44/66.7
Remediation	1/8.3	1/16.7	1/10	1/16.7	3/17.6	2/13.3	9/13.6
Electronic Blackboard	1/8.3	0	0	0	0	0	1/1.5

In completing a review of the literature and in examining lists of available software, it was apparent that most of the software available for use in Marketing Education is simulations. The data above supports this thesis and the information presented in the next section of this Chapter gives further support. Forty-four (66.7%) of

the instructors responding indicated that they were using simulations for instructional purposes. The next higher area, Drill and Practice, is used by approximately one third and is probably a result of a lack of available software. The other usage categories also reflect a lack of use of educational designed software. The ranking of the popularity is not dependent upon just the states with more respondents but generally follows the same pattern across the Table.

TABLE 21

SUBJECT: Instructional Uses of Applied Business Software

STATES:	MI	ND	OR	SD	VA	WA	TOTAL
# of RESPONDENTS:	12	6	10	6	17	15	66
Word Processing	5/41.7	2/33.3	6/60	4/66.7	9/52.9	11/73.3	37/56.1
Data Base Management	4/33.3	1/16.7	1/10	1/16.7	8/47.1	3/20	18/27.3
Electronic Spreadsheet	4/33.3	2/33.3	4/40	2/33.3	5/29.4	4/26.7	21/31.8
Accounting Packages	4/33.3	1/16.7	4/40	2/33.3	1/5.9	4/26.7	16/24.2
Inventory Packages	9/75	3/50	6/60	2/33.3	9/52.9	6/40	35/53
Business Graphics	2/16.7	0	3/30	1/16.7	4/23.5	2/13.3	12/18.2
Integrated Software	2/16.7	1/16.7	0	0	1/5.9	0	4/6.1
Other	0	0	0	0	1/5.9	0	1/1.5

Only two types of software, Word Processing and Inventory Packages, are utilized by more than 50% of the respondents. Three other categories, Data Base Management,

Electronic Spreadsheets, and Accounting Packages are used as instructional devices by one fourth to one third of the respondents. This pattern also is relatively consistent across the states surveyed.

The data in these four tables is clearly influenced by the short time that the instructors have been using computers. Even though no attempt was made to correlate answers on individual replies, it appears that the instructors have not yet had time to adopt the more sophisticated usages of computers, for example, integrated software and electronic blackboards, and are using primarily software that either is widely advertised, available from other teachers, or included with hardware when purchased, such as gradebooks, simulations, and word processors.

Software Ratings by Title

Forty-eight of the instructors responding to the questionnaire answered some or all of the questions on the second page of the survey instrument regarding specific software by brand name. It was hoped that sufficient information would be received on this section to allow the researcher to be able to make specific recommendations concerning commercially available software for use in Marketing Education. The data is limited but there were sufficient responses to allow some data to be presented. Only those software packages listed by three or more

respondents will be mentioned by name. The rating scale that the respondents were asked to use was from "1" (poor) to "5" (excellent).

Data Base Management: A total of 13 responses were made to this open-end question. Seven software packages were mentioned by the eleven respondents who answered this question. Only one package, Appleworks was mentioned by three or more respondents. The three who rated it all gave it a "4." Two others listed it without rating it.

Word Processing: Twenty-five respondents answered this question. They listed fifteen different programs by title. Three packages were named by three or more respondents: Applewriter, Scipsit, and Super Scipsit. Of the other twelve, nine received "4's," one received a "1," and two received a "5." Applewriter was mentioned six times and was rated "3" once, "4" twice, and "5" three times. Scipsit was mentioned three times and was rated "2" once and "4" twice. Superscipsit also was mentioned three times and was rated "4" twice and "5" once.

Spreadsheets: Eighteen respondents answered this question, listing seven programs by title. Two, Visicalc and Appleworks, were listed by more than three respondents. Visicalc was listed nine times and received a rating of "1" once, "3" once, "4" four times, and "5" three times.

Appleworks (the spreadsheet of which is based on Visicalc) was mentioned by name five times and received a rating of "3" twice and "4" three times.

Integrated Software: Nine respondents listed a software package by name in answer to this question. Three names were given, but only one, Appleworks, was mentioned by three or more respondents. It received a rating of "4" four times and "5" three times. Both of the other programs listed received a rating of "5," however, one is a series of individual programs and does not meet the normal definition of Integrated Software.

Gradebooks: Sixteen respondents listed a software package in response to this question, however, three of these responses indicated that they were using Integrated Software Packages such as Appleworks rather than packages designed as gradebooks. One additional respondent indicated that he used a gradebook developed by a fellow teacher and not available commercially. Three packages, Volon, Report Card by Sensible Software, and Gradebook by Midwest were listed by three respondents each. Volon received a rating of "1" once, "2" once, and "3" once. Report Card received a rating of "3" once and "5" twice. Gradebook received a rating of "3" once and "4" twice. Four other gradebook programs were listed with variable ratings.

Software that Has Been Especially Useful: Thirty-four different programs of commercially produced software were

mentioned in response to this question. Eight were listed by three or more respondents and will be rated below. In addition, one program that was listed by two respondents will be included in this discussion because of the comments made by both respondents.

Five respondents listed Appleworks. It is being used for DECA Accounts, manuals, correspondence, and tests. It was rated as being "excellent" and "user friendly."

Three respondents listed Accounting and the Micro from Southwestern. No comments or rating were given.

Two respondents listed the DECA Tests and commented very positively. One comment was that it is "best preparation for contests yet." The other was that it is "extremely useful for students."

A frequently mentioned commercial software simulation was Enterprise Sandwich Shops from Gregg/McGraw-Hill. Eight respondents listed it and the comments given are "excellent" and "gets better each time I use it."

Four respondents listed Gadgetronics from Southwestern. The only comment was that it is a "good simulation."

The most commonly listed software package was Jeans Factory from Phillips Petroleum Co. Eighteen respondents listed it and a wide variety of positive comments were made. "it is a good way to teach supply and demand." "It is easy to use." It is a "good introduction to the computer." "I use it as the basis for a six-week unit." These were some

of the more definite comments made about Jeans Factory. With 20% of all respondents to this survey listing this program, which amounted to almost half of those replying to the questions about specific software, this clearly was the most popular program for Marketing Educators. No geographical patterns emerged concerning its users--they were from all states included in this study.

Three respondents listed Marketing Peanut Butter. They said they used it with "advertising," "marketing," and as an "introduction to 'Our Run-your-own-Business Project.'"

The third most frequently listed program was Print Shop. Respondents indicated that they were using it for signs and advertising, especially for their student store.

Radio Shack's Accounting and Inventory Programs were listed by three users as being a good program. The only comment given was "super." This program was also listed twice without comment by respondents to the next question about programs especially difficult to use.

Student Store Management Systems from DECA was listed by three respondents as being good. No comments were made. This program was also listed without comment by one respondent in the next question--programs difficult to use.

Programs Especially Difficult to Use: Eighteen programs were listed in response to this question. Three were listed by three or more respondents and two by two respondents.

Three respondents listed Free Enterprise without comment. It was also listed by a different respondent to the question about especially good software, also without comment.

PFS File and/or PFS Report were listed by four respondents without comment. PFS File was also listed twice in response to the prior question about good software and one comment was made. It is "good for student work records."

Three respondents listed Peanut Butter as especially difficult. "Can be used only by advanced users" and "for experienced users" were the comments made.

Profit and Loss and Multimate were the programs listed by two respondents each. The comments were very negative and indicated that these programs were "not for Students," "not friendly," and "very difficult."

Ratings of Software listed by Title on Questionnaire:
Fifteen commercial software packages were listed by name on the questionnaire. Forty-five respondents checked some or all of them. Three or more of the respondents gave ratings to seven programs and indicated that they had used them. These ratings are summarized in the table below.

TABLE 22

SUBJECT: Rated Software (rating-number of responses)

Nationwide Computer Products	1-	2-2	3-1	4-2	5-
CDEX Training Programs	1-	2	3-1	4-2	5-4
<u>Chatels and Cutthroats</u>	1-	2-	3-1	4-1	5-1
<u>Enterprise Sandwich Shops</u>	1-	2-1	3-2	4-7	5-11
<u>Free Enterprise</u>	1-1	2-1	3-2	4-2	5-1
<u>Gadgetronics</u>	1-	2-	3-1	4-2	5-
<u>Stock Market</u>	1-	2-1	3-2	4-	5-

From this data it appears that the CDEX Training Programs are reasonably useful in Marketing Education Classrooms. This data also emphasizes the earlier comments and data about the usefulness of Enterprise Sandwich Shops.

Respondents Requesting Results

The last line of the questionnaire is a blank for those respondents who wish a copy of the results of this study sent to them. Fifty-one (55.4%) out of the 92 who responded to this survey filled in this question. In addition, one instructor returned a brief note in the postage paid envelope requesting a copy of the results--but did not return the questionnaire.

These results are summarized in the next chapter. Conclusions are drawn and recommendations are made.

CHAPTER 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Introduction

The primary purpose of this study was to ascertain what software was being utilized by Marketing Education Programs that had successfully integrated microcomputers into the curriculum. The assumption was made that many programs had successfully incorporated the micro and that their results would be similar in nature and quantifiable.

The questionnaire focused on the following five major areas of concern or questions to obtain this information:

1. General information about individual programs and their specific enrollment figures for the past four years and projected enrollments for the coming school year.
2. The future of the micro and microcomputer skills in relation to Marketing classrooms, marketing students, and marketing occupations.
3. What hardware is being used, how much is it being used, and how was it and its software acquired (source of funds).
4. What are the general types of usage of the microcomputers which are available to students in Marketing classes.

5. What software is being used and how well has it worked for student use--by specific brand name and publisher.

To answer these questions, 180 questionnaires and cover letters were sent to Marketing educators in the six states of Michigan, North Dakota, Oregon, South Dakota, Virginia, and Washington. Ninety usable questionnaires were returned and the data from them was presented in Chapter 4 of this study. A summary of these findings is presented below.

Summary

The data received in response to the survey questions on enrollment was not usable. Too many respondents either did not answer, answered incompletely, or answered with numbers which conflicted with other answers given. However, other background data suggests part of the answer to the first area of concern. The vast majority of the respondents (80 out of 88 or 90.9%) teach two, three, or four classes of Marketing per day. Seventy-five out of 90 (83.3%) reported that they have classes that average in excess of fifteen students each. Seventy-seven (86.5%) responded that they taught in non-urban schools. The respondents showed no uniformity of opinion on how many of their students seek additional education beyond high school but 70 percent said that at least 30 percent do.

No one expressed an opinion that the demand for computer skills would decrease in the future and over 75 percent of the respondents felt that they will be required at some point in the future for students to find employment in the marketing occupations. Of the sixty-six (73%) respondents who are using computers now, forty-eight (78.7%) have had a computer two years or less. Forty (67.8%) have at least one computer available for exclusive use of the Marketing Program.

Over 60 percent of the respondents are using Apple series II computers (II, II+, IIe, or IIc). The most frequently mentioned source of funds for the acquisition of computer hardware was the Federal and/or State governments (38.8%). Computer Software was most often purchased using local funds (49%). Little or no funds from Grants or DECA/Student funds are shown as being used.

Marketing Educators are utilizing a wide variety of software packages to operate their hardware. Simulations are the single most common type of usage of commercial Educational Software and word processing and store management programs are receiving the most extensive use of the business application software. The use of sophisticated educational software such as electronic blackboards and other types of Computer Assisted Instruction software has not taken place in Marketing Education according to the data obtained by this survey. Very few instructors are requiring

students to be able to program and those who are are requiring BASIC only. The amount of time spent by the students on the computer per week was reported overwhelmingly as being less than one hour.

From the data obtained it appears that Jeans Factory and Enterprise Sandwich Shop have been the most frequently used simulations in Marketing Education. It also appears that the programs available with Apple hardware, Appleworks and Applewriter, plus Visicalc, are the most commonly used business application software. The limited amount of data obtained makes any rating of specific software packages very unreliable.

Conclusions

The following conclusions are drawn from the data obtained by the questionnaire and the review of literature.

1. Computers are very new to Marketing Education and instructors have not yet had time to establish a definite pattern of integration into their curriculums.
2. Microcomputers are here to stay as a part of Marketing Education as well as education in general and computer skills will be required of Marketing students seeking employment in the future.
3. The Apple II series of computers is most common among Marketing Programs at this time in secondary schools. Marketing Educators are not obtaining IBM or compatible

machines. Most programs are funding computers through regular funding channels and are not using either Grants or Student Funds.

4. Instructors who have obtained a microcomputer for their program are not utilizing them for large group instruction, but are utilizing them on an individual basis, with small groups, or as a classroom management aid. Therefore, it can be concluded that the computer has not yet reached its fullest potential in Marketing Education.

5. Very little software is being utilized that is designed specifically for secondary Marketing Education. Most software that is being used is generic in nature, designed for business use, and requires the instructor to develop specific applications for it. This probably reflects a shortage of quality software commercially available rather than a planned situation by the instructors. The commercially available educational software is primarily simulations, some of which are very useful aids to introduce or to serve as examples for specific units of instruction.

Recommendations

From the information obtained through this survey and the review of literature, the author makes the following recommendations:

1. Because Marketing Education has lagged behind other disciplines in the utilization of microcomputers and their integration into the curriculum, it is imperative for the instructors in Marketing to become more competent with computers and to obtain more access to hardware so that their students will have more hands-on time to develop the skills they will need to get jobs in the marketing occupations in the near future. It is also imperative for the institutions who are training individuals to teach Marketing or any secondary business subject to require their graduates to be computer competent. Possible sources of funds that have not been fully tapped at the secondary level by Marketing are grants and DECA/Student funds.

2. Marketing Educators should not continue to fill the "Apple-Gap" but should orient their purchases to the types of machines being utilized most frequently by businesses that will be employing their students. However, this does not imply that any program should have several different machines in one classroom. Instructors should not be expected to teach students on more than one type of machine and schools should not have to bear the financial burden of purchasing multiple copies of software to operate multiple brands of hardware within one classroom.

3. Some national organization accessible to all Marketing Educators should immediately move to serve as a clearinghouse for information about and evaluations of

software. This would allow instructors to exchange data about their experiences with specific software and hardware and would enable Marketing Educators to expand their usage of computers with much less strain and cost.

4. Marketing Education instructors should move to broaden the scope of their utilization of microcomputers beyond single student or small group applications. The computer needs to become an everyday tool of instruction as well as being used to solve specific problems. As part of this, materials should be developed to allow greater use of software likely to be found in use in businesses that employ marketing students. This would aid in the reduction of the dependence upon simulations to utilize the computer and will give the students more marketable skills.

5. Finally, it is recommended that additional studies be conducted in Marketing Education to find out if the adoption of Microcomputers actually has an effect on the enrollment in the program. If it cannot be demonstrated that there is a positive effect, then possibly Marketing Education is not marketing its programs well enough or needs to turn the responsibility of computer skills over to another department. If computer integration does have a positive effect, then the above recommendations should be implemented as quickly as possible.

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APPENDICES

APPENDIX A - Letter of Transmittal

May 14, 1985

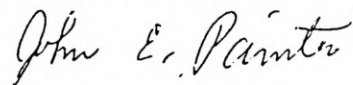
Dear Marketing Educator

Because of the extensive impact computers, especially micro-computers, are having on society in general and education in particular, many Marketing Programs throughout the country appear to be undergoing significant changes in both curriculum and methodology. As part of the requirements for my Master of Science Degree in Business Education I am conducting a study of what these changes are. I am primarily seeking data on what has been done and what software is being used to bring about these changes.

The recent literature concerning computers in education contains a large number of "shoulds" about computers as well as many "whys," but seems not to detail the "hows." The enclosed questionnaire requests some background information about your program and then asks about the "hows" of your computer usage--especially the software that you have had success with.

Please, your help and expertise are needed, even if you have not yet adopted a computer into your program. Won't you take a few minutes and complete the questionnaire and return it to me in the prepaid envelope? Your answers will, of course, be kept strictly confidential. If you would like to examine the Abstract of my study, please fill in your name and address on the bottom of the questionnaire and I will be happy to send you a copy in late July. Thanks for your help and time.

Sincerely yours



John E. Painter
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Enclosure

APPENDIX B - Survey--page 1

WILL YOU PLEASE RESPOND TO THE FOLLOWING QUESTIONS ABOUT YOUR MARKETING/DE PROGRAM?

- 1) How many Marketing/DE classes do you have each day? ☐ one ☐ two ☐ three ☐ four ☐ five or more
- 2) What is the average number of students enrolled in each class? ☐ less than 15 ☐ 15-20 ☐ over 20
- 3) Is your high school located in an ☐ urban, ☐ suburban, ☐ small city, or ☐ rural area?
- 4) What percentage of your students normally seek further education after graduation?
☐ less than 15% ☐ 16-30% ☐ 31-45% ☐ 46-60% ☐ 61-75% ☐ over 76%
- 5) Would you please list your total fall semester enrollment for the following years by class?
 1981 Marketing I ☐ Marketing II ☐ Coop ☐
 1982 Marketing I ☐ Marketing II ☐ Coop ☐
 1983 Marketing I ☐ Marketing II ☐ Coop ☐
 1984 Marketing I ☐ Marketing II ☐ Coop ☐
 expected for 1985 Marketing I ☐ Marketing II ☐ Coop ☐
- 6) At what percentage of your Coop Work Stations has the employer expressed a desire for students with computer skills? ☐ less than 10% ☐ 10-25% ☐ 26-45% ☐ 46-70% ☐ over 70%.
- 7) Is this percentage ☐ increasing ☐ decreasing ☐ remaining constant?
- 8) What department is primarily responsible for teaching Computer Literacy?
☐ Math ☐ Business ☐ Other (please Specify _____)
- 9) Do you feel that computer application skills will be required for students to get employment in the Marketing occupations in the near future? ☐ yes ☐ no If "yes," how soon? _____ years.
- 10) Do you utilize any type of computer in your program? ☐ yes ☐ no

ALL OF THE FOLLOWING QUESTIONS CONCERN COMPUTER USAGE. IF YOU ANSWERED QUESTION 10 "YES" THEN PLEASE ANSWER THEM. IF NOT, PLEASE STOP HERE AND RETURN THIS QUESTIONNAIRE TO US. THANK YOU VERY MUCH.

- 11) Does your administration support computers in Marketing? Very strong 5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐ not at all.
- 13) How long (in years) have you had computers in Marketing? ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 or more
- 14) What has been the primary source of funds to purchase your computer--
 HARDWARE? ☐ Federal & /or State ☐ Local Budget ☐ Grant ☐ DECA Club &/or Student Funds
 SOFTWARE? ☐ Federal &/or State ☐ Local Budget ☐ Grant ☐ DECA Club &/or Student Funds
- 15) Would you indicate the amount of hardware you have available by putting a number in each blank?
☐ Apple (II, II+, IIe, IIfc) ☐ Apple (III, Macintosh, Lisa)
☐ Commodore (any Model) ☐ IBM (include all IBM compatible machines)
☐ Radio Shack TRS-80 (any Model) ☐ Mainframe terminals (of any type)
☐ Other types of Micros (please specify _____)
- 16) Are these computers available exclusively to Marketing/DE students? ☐ yes ☐ no
 If "no" how many periods a day are they available? _____ out of _____ total periods per day.
- 17) Which of the following management uses of computers apply to you? (Please check as many as apply)

INSTRUCTOR USAGE	STUDENT AND INSTRUCTOR USAGE
☐ Classroom Management (Gradebook, Tests, Lesson Plans)	☐ Career Guidance
☐ Classroom Management (Word Processing, Data Base Management)	☐ Store Management
☐ DECA Management (Accounting, Competition Scoring, Budgeting)	☐ DECA Club Management
☐ Store Management (Accounting, Inventory, Spreadsheets)	
- 18) Please check as many of the following instructional uses of computers that apply to your classroom.
 EDUCATIONAL DESIGN SOFTWARE
☐ Drill and Practice ☐ Tutorials ☐ Simulations ☐ Remediation
☐ Electronic Blackboard (in place of other audio-visual equipment)
 BUSINESS APPLICATION SOFTWARE
☐ Word Processing ☐ Data Base Management ☐ Electronic Spreadsheets ☐ Accounting Packages
☐ Inventory ☐ Business Graphics ☐ Integrated Software ☐ Other (specify _____)
- 19) Do you require any programming in your class? ☐ No ☐ Yes--Language? _____
- 20) Approximately how many hours per week will a typical student in your class use a computer for work REQUIRED for class? ☐ less than 1 ☐ 1-3 ☐ 3-5 ☐ over 5

APPENDIX C - Survey--page 2

Please list by NAME and rate the software you use most often of each of the following types:

Data Base _____ Poor 1 2 3 4 5 Excellent
 Word Processor _____ Poor 1 2 3 4 5 Excellent
 Spreadsheet _____ Poor 1 2 3 4 5 Excellent
 Integrated _____ Poor 1 2 3 4 5 Excellent
 Gradebook _____ Poor 1 2 3 4 5 Excellent

Please list below the three software packages that you have found to be especially useful and comment on how you are using them. Please use the back of this form if you need more space.

1 _____
 2 _____
 3 _____

Would you please list below any software that you have found to be especially difficult to use?

1 _____
 2 _____
 3 _____

Please rate the following commercially produced software.

MCE, Inc.'s job development packages
 _____ Have not Used or Poor 1 2 3 4 5 Excellent Comment _____

Nationwide Computer Products' classroom management packages, "Class Records," "Classfile,"
 "Classroom Admin Sys.," "Comp Lesson Authoring Sys.," "Crossword Magic," "The Great Creator" or other
 _____ Have not Used or Poor 1 2 3 4 5 Excellent Comment _____

CDEX Training Programs for "dBase II," "Visicalc," "Supercalc," "Wordstar," "Easywriter"
 _____ Have not Used or Poor 1 2 3 4 5 Excellent Comment _____

Opportunities for Learning, Inc.'s career exploration packages and job development packages
 _____ Have not Used or Poor 1 2 3 4 5 Excellent Comment _____

"Retail Sales Management II" Nationwide Computer Products
 _____ Have not used or Poor 1 2 3 4 5 Excellent Comment _____

"The Values Auction" Career Aids, Inc.
 _____ Have not Used or Poor 1 2 3 4 5 Excellent Comment _____

"Career Directions" Systems Design Associates
 _____ Have not Used or Poor 1 2 3 4 5 Excellent Comment _____

"Cartels and Cutthroats" Strategic Simulations
 _____ Have not Used or Poor 1 2 3 4 5 Excellent Comment _____

"Enterprise Sandwich Shops" Gregg/McGraw-Hill
 _____ Have not Used or Poor 1 2 3 4 5 Excellent Comment _____

"Free Enterprise" SRA Software
 _____ Have not Used or Poor 1 2 3 4 5 Excellent Comment _____

"Gadgetronics" South-Western Publishing Co.
 _____ Have not Used or Poor 1 2 3 4 5 Excellent Comment _____

"The Market Place" Career Aids, Inc.
 _____ Have not Used or Poor 1 2 3 4 5 Excellent Comment _____

"Portfolio" Southeastern Educational Software
 _____ Have not Used or Poor 1 2 3 4 5 Excellent Comment _____

"Stock Market" Micro Learningware
 _____ Have not Used or Poor 1 2 3 4 5 Excellent Comment _____

"Survival Math Simulations" Sunburst Communications
 _____ Have not Used or Poor 1 2 3 4 5 Excellent Comment _____

If you would like a copy of the results of this study, please fill in your name and address below:

NAME _____ ADDRESS _____ CITY _____ STATE _____ ZIP _____

APPENDIX D - Instructional Requirements Matrix

Table 1
Instructional Requirements Matrix

Characteristic	Strategy													Implications
	Drill	Tutorial	Problem Solving	Programming	Simulation	Teaching	Case	Data Analysis	Information Retrieval	Word Processing	Computer Library	Low/High Cost	Teaching Aids	
Large Amounts of Data		X			X	X	X	X	X	X		X		Minimum RAM Requirement Disk Required
Color	X				X								X	Color Hardware Available
Lower Case		X			X			X	X			X	X	Lower Case Hardware Required
Shared Data					X			X						Disk Network
Graphics	X	X		X	X						X	X	X	Graphics Hardware Required High Graphics Resolution Required
Specific Language		X	X	X	X						X			Specific Language Required
Multiple Languages				X										Req. for Language Software, Min. RAM or special Microprocessor/Peripheral
Student Record Keeping	X	X			X	X	X					X		Disk Required
High Student Terminal Time		X		X	X					X				Lower Price Required
Large Amount of Text		X						X	X					Disk Required/ Text Screen Resolution (80 col.)
Printed Output		X	X	X		X	X	X	X	X	X	X		Serial or parallel port required
Specific Packaged Programs	X								X	X			X	Specific program must be available for computer
Voice/Music Output					X					X				Voice/Music hardware must be available
Use Special Input Devices					X					X	X			Special devices must interface easily
Use Special Input Devices					X					X	X			Special input devices must interface easily

Fall/Winter 1983

Table 2
Comparison of Microcomputer Systems

	APPLE IIe 64/64	ATARI 1100 64/64	Commodore 64 64/64	DEC Rainbow 64/256	IBM PC 64/256	Kaypro II 64/64	Osborne I 64/64	TIMEX TI 99/4A 16/32	TRS-80 TS2000 16/32	TRS-80 4 64/128	Color 4/32
Memory Min/Max	16/64	16/64	16/64	16/256	16/256	16/64	16/64	16/32	16/32	16/128	16/32
Lowercase	YES	YES	YES	YES	YES	YES	YES	NO	YES	YES	NO
Sound	YES	YES	YES	NO	YES	NO	NO	YES	YES	NO	YES
Screen Resolution Text (lines x char)	24 x 40	24 x 40	25 x 40	24 x 40 24 x 132	25 x 40 25 x 40	24 x 40	24 x 32	24 x 32	24 x 32	24 x 40 24 x 40	16 x 32
Graphics (vert x horiz) Low High	48 x 40 192 x 250	160 x 192	200 x 320	240 x 320 240 x 800	200 x 320 200 x 640			192 x 256	192 x 256	240 x 640	32 x 64 192 x 256
Colors	6/16	16	16	4/16	16	NO	NO	16	8	NO	8
Multiple Languages	YES	YES	YES	YES	YES	YES	YES	YES	NO	YES	YES
Interfaces for Proprietary*	1, 2, 3, 4, 5	2, 3	2, 3	3	1, 2, 3, 4, 5	3	3	2, 3	3	3, 3	2, 3, 4
Availability of Software**	1, 2, 3	1, 2, 3	1, 2, 3	2, 3	1, 2, 3	2, 3	2, 3	1, 2	1	1, 2, 3	1, 2
Special Features	80 column card	Serial port Program can interchange character set	IEEE-488 bus RS-232C interface CP/M Three voice synthesizer	Dual 8- and 16-bit pro- cessor CP/M	Detached keyboard	Portable Includes software Communication and printer ports CP/M	Portable Includes software Communication ports CP/M	Program cartridge	Software, cartridge	Integrated system Printer interface CP/M square	Program cartridge
Cost***	\$1,795 a, b	\$899	\$399	\$1,495 a, b	\$1,364 b	\$1,795 a, c	\$1,795 a, c	\$150	\$149.95	\$1,999 a, b	\$199

* The number refers to the peripheral interface categories.

** The number refers to software groups.

*** a. Display included; b. Disk drive included; c. Dual disk drive included.

AEDS JOURNAL

APPENDIX E - Vocational Education Software Evaluation

Vocational Education Software Evaluation (User's Guide)

PURPOSE

This software evaluation instrument was designed to help vocational teachers identify and select quality computer programs with application in vocational education. You can make a contribution to your profession by using this instrument to evaluate a computer program you are currently using. While most of the items in the instrument are self-explanatory the following instructions will help you complete the instrument.

DESCRIPTIVE

Vocational Subject Area:

Fill in the vocational subject area or areas where this computer program has application. If possible choose from the following list.

Agricultural Educ.	Business Educ.
Ag. Economics	Bookkeeping/Accounting
Ag. Mechanics	Clerical/Administrative
Animal Science	Keyboarding
Leadership	Marketing/Distributive Educ.
Plant Science	
Soil Science	Forestry
Health Services	Home Economics Educ.
Industrial Educ.	Child Care Services
Electronics	Clothing
Graphic/Drafting	Food Service
Metals	Individual and Family
Power Mechanics	Resource Management
Wood/Construction	Institution Management
	Nutrition and Foods
	Service Occupations

Grade Levels:

Bracket the grade level zone that shows all of the grades this program could be used in. For example a computerized drafting program might be used in grades 9-C.C. (Community College) shown as follows:

34 K 1 2 3 4 5 6 7 8 9 10 11 12 C.C.

REQUIRED HARDWARE

Operating System:

Unfortunately not all software is compatible with all computer hardware, therefore it is especially important that you indicate what system a computer program will operate on. In this space fill in the machine the program is intended to operate on. For example: Apple IIe; IBM Personal Computer; or Radio Shack TRS III.

Required Peripherals:

Check only those peripherals required to operate the computer program you are evaluating.

CONTENT & USABILITY

For each of the items in the Content and Usability sections circle the number that represents the level to which each item is satisfied.

Only use NA (not applicable) when an item is wholly inappropriate for the program you are evaluating.

Please use the comments section to indicate major strengths and weaknesses.

This document was developed pursuant to a grant from the Oregon Department of Education. However, the opinions expressed herein do not necessarily reflect the position or policies of the Oregon Department of Education, and no official endorsement should be inferred.

1983

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Vocational Education Software Evaluation

DESCRIPTIVE

Program Name/Files: _____

Author/Vendor: _____

Cost: _____ ☐ Copywritten ☐ Public Domain

Type of Program: ☐ CAI ☐ Utility

Vendor Support: ☐ Yes ☐ No Updates: ☐ Yes ☐ No

Date of Review: _____ Reviewer: _____

Vocational Subject Area(s): _____

Grade Levels: Bracket zone
K 1 2 3 4 5 6 7 8 9 10 11 12 C.C.

Estimated Execution Time: _____ Minutes

REQUIRED HARDWARE

Operating System: _____ No. of Disk Drives: _____

Required Memory: _____

Required Peripherals: ☐ Printer ☐ Color Monitor

☐ Plotter ☐ Paddle/Joystick ☐ Modem

☐ Voice Synthesizer

CONTENT

Low High

NA 1 2 3 4 5 Content Accuracy

NA 1 2 3 4 5 Compatibility with Course Content/Strategies

NA 1 2 3 4 5 Presentation of Technical Information

NA 1 2 3 4 5 Presentation of Career Information

NA 1 2 3 4 5 Free of Stereotyping

Comments:

USABILITY

Low High

NA 1 2 3 4 5 Quality of Written Documentation

NA 1 2 3 4 5 Quality of Directions within Program

NA 1 2 3 4 5 Quality of Screen Format

NA 1 2 3 4 5 Level of Student Interaction

NA 1 2 3 4 5 Amount of Keyboarding Required

Comments:

Appendix C

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APPENDIX F - Universities with MDE Programs Contacted

Dr. Bill D. Syhlman
Department of Administration and Business Services
Eastern Washington University
Cheney, WA 99004

Dr. Richard D. Ashmin
Dept. of Vocational and Technical Education
210 Vo Tech Building
University of Minnesota
Twin Cities Campus
St. Paul, MN 55455

Dr. James L. Navara
Dept. of Bus. and Vo. Ed.
University of North Dakota
Grand Forks, ND 58201

Division Administrator
Dept. of Bus. and Dist. Ed.
College of Education
Wayne State University
5425 2nd Avenue
Detroit, MI 48202

Dr. John E. Sandberg
Dean, College of Education
Western Michigan University
Kalamazoo, MI 49008

Professor Apps
264 Teacher Education Bldg.
Dept. of Continuing and Voc. Ed.
University of Wisconsin--Madison
500 Lincoln Dr.
Madison, WI 53706

APPENDIX G - Sample Letter to Universities



Montana State University
Bozeman, Montana 59717

School of Business

Department of Business Education and Office Systems
Dr. Norman L. Millikin, Head

Telephone (406) 994-4995

November 7, 1984

Because of an apparent lack of published information on microcomputer applications in secondary Marketing/DE programs, my advisor suggested that I contact you. I am a graduate student at Montana State University and plan to do a professional paper on this topic.

Any help you can offer will be greatly appreciated, but I am specifically looking for names and current addresses of anyone who has recently done a study in any area that would relate closely to micro applications in Marketing/DE. If you know of someone, please let me know how to contact them and some information about their work so that I can ask them informed questions.

Thank you for your time and assistance.

Sincerely yours

John E. Painter

slp

APPENDIX H - Reply from University of North Dakota



Montana State University
Bozeman, Montana 59717

School of Business

Department of Business Education and Office Systems
Dr. Norman L. Milliken, Head

Telephone (406) 994-4995

November 7, 1984

*Kochinski Please
Respond!*

Dr. James L. Navara
Dept. of Bus. and Vo. Ed.
University of North Dakota
Grand Forks, N D 58201

Dear Dr. Navara

Because of an apparent lack of published information on microcomputer applications in secondary Marketing/DE programs, my advisor suggested that I contact you. I am a graduate student at Montana State University and plan to do a professional paper on this topic.

Any help you can offer will be greatly appreciated, but I am specifically looking for names and current addresses of anyone who has recently done a study in any area that would relate closely to micro applications in Marketing/DE. If you know of someone, please let me know how to contact them and some information about their work so that I can ask them informed questions.

Thank you for your time and assistance.

Sincerely yours

John E. Painter

John E. Painter

slp

John; I would recommend that you write Dr. Betty Heath, Marketing Educator, Virginia Tech, Blacksburg, Virginia 24061. She is the leader in the MDE field in this area & has written a microcomputer resource publication (over)

APPENDIX H - ND Reply--continued

published by the Center for Vocational Education,
Ohio State U.

Don Kohus
MDE
Teacher Educator

Ms. Debbi Popo

Material Lab

154 W 12th

St. Serv Bldg

OSU 43210

614-422-4277

THE
UNIVERSITY
OF
NORTH
DAKOTA

3017-0838
BUSINESS & VOCATIONAL EDUCATION
P.O. Box 8236, University Station
Gamble Hall, Rm. 365
Grand Forks, North Dakota 58202

APPENDIX I - Reply from Wayne State University



Montana State University
Bozeman, Montana 59717

School of Business
Department of Business Education and Office Systems
Dr. Norman L. Milliken, Head

Telephone (406) 994-4995

November 7, 1984

Division Administrator
Dept. Of Business and Dist. Ed.
College of Education
Wayne State University
5425 2nd Avenue
Detroit, MI 48202

Dear Sir:

Because of an apparent lack of published information on microcomputer applications in secondary Marketing/DE programs, my advisor suggested that I contact you. I am a graduate student at Montana State University and plan to do a professional paper on this topic.

Any help you can offer will be greatly appreciated, but I am specifically looking for names and current addresses of anyone who has recently done a study in any area that would relate closely to micro applications in Marketing/DE. If you know of someone, please let me know how to contact them and some information about their work so that I can ask them informed questions.

Thank you for your time and assistance.

Sincerely yours

A handwritten signature in cursive script that reads 'John E. Painter'.

John E. Painter

slp

December 4, 1984

Mr. Painter, please contact: Mr. Carl Woloszyk
Consultant Marketing/DE
Vocational-Technical Education Service
Michigan Department of Education
Lansing, MI 4848909

He is the consultant for secondary education for the state of Michigan and is knowledgeable about microcomputer applications.

APPENDIX J - State Coordinators Contacted

Marie J. Burbank
State Dept. of Public Instruction
125 S. Webster
P. O. Box 7841
Madison, WI 53707

Patrick E. DiPlacido
Vo Tech Division
Department of Education
550 Cedar St.
St. Paul, MI 55101

Dan Hoff
Division of Vocational and Technical Education
Richard F. Kneip Bldg.
700 N. Illinois
Pierre, SD 57501

Leonard F. Pokladnik
State Board of Vocational Education
15th Floor--Capitol Bldg.
Bismark, ND 58505

Jack Ray
Division of Vocational, Technical & Adult Ed.
Superintendent of Public Instruction
Old Capitol Bldg. FG-11
Olympia, WA 98504

Dr. Carl A. Woloszyk
Vo-Tech Ed Services
Michigan Dept. of Education
P. O. Box 30009
Lansing, MI 48909

APPENDIX K - Letter to State Coordinators



Montana State University
Bozeman, Montana 59717

School of Business

Department of Business Education and Office Systems
Dr. Norman L. Millikin, Head

Telephone (406) 994-4995

November 7, 1984

Because of an apparent lack of published material about the application of microcomputers in secondary Marketing/DE programs, my advisor suggested that I contact you about the programs in your state. I am a graduate student at Montana State University and plan to do my professional paper on ways of integrating micros.

Please, would you send me any specific information that you might have on this subject? In addition, will you please give me the names and addresses of any instructors in your state who have made significant gains in merging micros into their Marketing/DE curriculums? I would like to contact a few instructors directly before constructing a survey instrument so that it can better reflect the current usages and patterns.

Thank you for your cooperation and assistance.

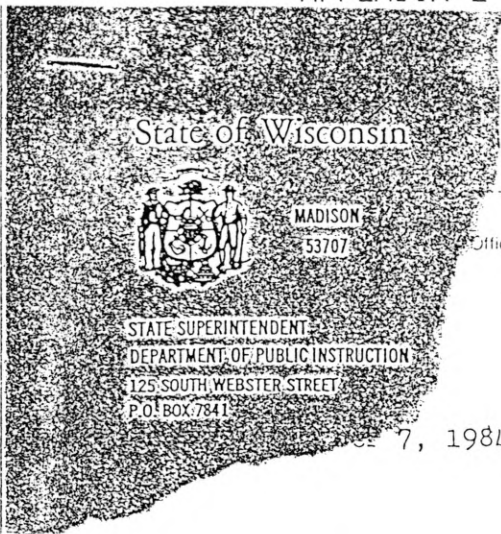
Sincerely yours

John E. Painter

slp

APPENDIX L - Reply from Marie J. Burbank

NOV 20 1984

University
59717

Office Systems

Telephone (406) 994-4995

7, 1984

Ms. Marie J. Burbank
State Dept. of Public Instruction
125 S. Webster
P.O. Box 7841
Madison, WI 53707

Dear Ms. Burbank

Because of an apparent lack of published material about the application of microcomputers in secondary Marketing/DE programs, my advisor suggested that I contact you about the programs in your state. I am a graduate student at Montana State University and plan to do my professional paper on ways of integrating micros.

Please, would you send me any specific information that you might have on this subject? In addition, will you please give me the names and addresses of any instructors in your state who have made significant gains in merging micros into their Marketing/DE curriculums? I would like to contact a few instructors directly before constructing a survey instrument so that it can better reflect the current usages and patterns.

Thank you for your cooperation and assistance.

Sincerely yours

John E. Painter

John E. Painter

slp

Carol Lollyson
Beaver Dam HS
paper enclosed
414-885-9241

Rob James
North Texas State
Denton

also Labor - UW Stout - Jack
Dean Labor Hall - Educator
Harvey Hall - an interest
Mendota, WI 53741 of his

John -
Sally this note
is so short, but
thought you'd want
this ASAP
Marie

APPENDIX M - Reply from Jack Ray



DR. FRANK B. BROUILLET

Superintendent of Public Instruction

Mr. Ron Cooper
MDE Coordinator
Lake Washington High School
12033 NE 80th
Kirkland, WA 98033

Mr. Michael Gass
MDE Coordinator
Bellevue High School
601 108th SE
Bellevue, WA 98004

Ms. Patsy Ethridge
MDE Coordinator
Cleveland High School
5511 15th Avenue S.
Seattle, WA 98108

APPENDIX N - Reply from Dr. Carl A. Woloszyk

NOV 26 1984

STATE OF MICHIGAN
DEPARTMENT OF EDUCATION
VOCATIONAL-TECHNICAL EDUCATION SERVICE
Box 30009, LANSING, MICHIGAN 48909

Montana State University
Bozeman, Montana 59717

ness
iness Education and Office Systems
eac

Telephone (406) 994-4995

vember 7, 1984

Dr. Carl A. Woloszyk
Vo-Tech Ed Services
Michigan Dept. of Education
P.O. Box 30009
Lansing, MI 48909

Dear Dr. Woloszyk

Because of an apparent lack of published material about the application of microcomputers in secondary Marketing/DE programs, my advisor suggested that I contact you about the programs in your state. I am a graduate student at Montana State University and plan to do my professional paper on ways of integrating micros.

Please, would you send me any specific information that you might have on this subject? In addition, will you please give me the names and addresses of any instructors in your state who have made significant gains in merging micros into their Marketing/DE curriculums? I would like to contact a few instructors directly before constructing a survey instrument so that it can better reflect the current usages and patterns.

Thank you for your cooperation and assistance.

Sincerely yours

John E. Painter
John E. Painter

slp

Write Bob Pulaski
Lockester Senior HS.
180 S. Liversois
Rochester, MI 48063

We have 150 programs
utilizing micro-computers.
Carl G. Woloszyk

concerning school store
application.
which he has developed.