COMPUTER TRAINING PROVIDED BY VENDORS OF MICROCOMPUTERS IN THE OKLAHOMA CITY METROPOLITAN AREA

By

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CHAPTER I

INTRODUCTION

Microcomputers have been among the fastest selling high-tech devices sold during the last 15 years. These computers are used for everything from balancing a checkbook to analyzing complex mathematical formulas in industry. One of the most important features of computers is their ability to process huge amounts of data and to perform repetitive tasks very quickly. The wide variety of uses for computers makes them very promising additions to any training department.

As pointed out by Harris (1983, p. 2), "When computers were first introduced into the educational environment, they had limited capacity and served one user at a time." Large mainframe computers capable of serving many users soon entered the picture, and shortly thereafter microcomputers made their appearance. Today these machines are capable of processing huge amounts of information quickly.

Two of the most significant ways in which computers can be used to help trainers are computer-aided instruction (CAI), and computer-managed instruction (CMI). In CAI, the computer is used as an interactive teaching device, whereas

CMI allows a trainer to maintain accountability and information such as profile reports and performance records about his or her programs.

Many factors should be considered when implementing a computer-based training program. Several of these factors include initial cost, management orientation, site preparation, and the size of the program to be started. These factors have impact on the individual who wishes to purchase his own computer for personal use.

The three most common sources of computer training are colleges and universities, on-the-job training programs, and computer stores that sell either hardware or software. There has been much research conducted in the area of computer training offered through on-the-job training programs and colleges, but little has been written concerning those individuals who market computers and provide training programs. With the rapid increase in sales of personal computers, these computer 'supermarkets' may be viable alternatives to the traditional approaches provided by on-the-job training and university programs.

Marc Scharr, the manager of the Customer-Support Division of ComputerLand, sees training as an integral part of a personal computer sale. Scharr states "We are the link between the technical side of the business and the end user" (Zarley, 1984, p. 127). Some computer stores are organizing their training to suit the three main users of computers in businesses: executives, support personnel and analysts.

This study will draw from the current literature to determine how microcomputers are being used in a training environment. Computers have been found to be effective training tools when used in the academic classroom, in flight simulators, and for presenting material to be learned. A survey has been conducted of the computer stores located in the Oklahoma City metro area to determine what types of training they provide, and if this training is a true alternative for computer training provided through colleges or on-the-job programs.

Statement of the Problem

Persons who have purchased, or plan to purchase, microcomputers lack data concerning computer training that may be available from computer vendors.

Purpose

The purpose of this study is to determine both the content areas in which vendors of microcomputers in the Oklahoma City metropolitan area are providing training for the individuals and companies who are purchasing microcomputers from them, and the instructional methods with which these vendors conduct their training.

Research Questions

1. What are the demographic characteristics of vendors of microcomputers in the Oklahoma City metropolitan area?

2. What are the content areas of training provided by vendors of microcomputers in the Oklahoma City metropolitan area?

3. What are the instructional methods of training provided by vendors of microcomputers in the Oklahoma City metropolitan area?

Limitations

The limitations of this study include:

1. The scope of this study was limited to the Oklahoma City metropolitan area.

2. The population was limited to the vendors of microcomputers listed in the May, 1985 edition of the Southwestern Bell Yellow Pages, Greater Oklahoma City edition.

3. The terms microcomputer, personal computer, business system and mainframe are not mutually exclusive. Dealers participating in this study could respond with any combination of these terms when asked what types of computer hardware they sell.

Assumptions

1. Statistical information presented in this study will be representative of metropolitan areas similar to Oklahoma City in population density and socio-economic distribution.

2. For purposes of this study, it will be assumed that the literature that is found will be representative of the prevailing attitudes of those providing training to use computers, or those who are using computers in training.

Definitions of Terms

Computer-assisted instruction (CAI) - Instruction or training which uses computers to present information to students or trainees.

Computer-managed instruction (CMI) - The use of computers to manage records and information concerning a training program.

Hardware - The physical devices which make up a computer system. Hardware can include the computer itself, external storage devices, printers and display screens.

Microcomputers or Personal computers - Computers that are designed to be used primarily by one individual at a time. These terms are interchangeable for purposes of this study.

Software - The programs that are used on a computer.

Organization of the Study

Chapter I introduces the study by presenting the problem, the purpose of the study, research questions to be answered, limitations of the study, assumptions and definitions of terms. Chapter II contains a review of literature concerning past, current and projected trends in the area of computers and training. Chapter III reports the procedures used in this study, including the selection of subjects, data gathering instrument, and collection of the data. Chapter IV presents the findings of the study while Chapter V contains the summary, conclusions, and recommendations for further research.

CHAPTER II

REVIEW OF LITERATURE

The literature related to this study was reviewed in the following three areas: (1) Computer Vendors, (2) Training Provided on Computer Usage, and (3) Computers in the Training Environment. In the literature reviewed, the author was unable to find information that related directly to the problem as stated in Chapter I, but was able to find literature in the areas listed above.

Since computers have been introduced on the work scene, the pace of their operations has greatly increased. With the changes in technology, a need to train and re-train employees at all levels has been seen. It is possible for these machines that are speeding up production to also speed up the training process (Duc Quy and Covington, 1982).

Experts generally agree that it is tougher for adults to learn how to use computers than it is for children. This situation exists because many adults feel that their failures in learning technical material in the past will hamper their learning to use a computer (Strehlo, 1983). Adults who are trying to learn how to use a computer may try to learn on their own, while younger people tend to sign up

for professional help before starting. Whether one is trying to learn how to program a computer on their own or run a purchased application program, the skills needed are basically the same. Both imply a need for the learner to become familiar with certain tools or keywords.

In the area of education, computers are also opening new doors. It has been estimated there were over 50,000 microcomputers in American schools in 1984, and around 15 percent of personal computer sales were made in the education market (Ashbrook,1984). The National Science Foundation (NSF) estimates that there will be one million computers in schools by the end of the 1985 school year (Gleason, 1981). Since primary and secondary schools are the springboard of training for industry, what will the future hold for those students who are not introduced to computers at an early age?

Computer Vendors

According to TALMIS (1983) there were approximately 185,000 companies in the United States who had at least fifty employees each. Fifty employees could be considered the minimum company size in which formal training programs exist. TALMIS estimates that approximately 42%, or 78,000 of these businesses had trained some of their employees to use a computer by 1983. The average spending on computer training per course for these companies was around $40,000, or about $500 per trainee.

A study conducted by Hall-Sheehy (1985) of 21 Houston area companies concluded that microcomputer training is a neglected field. Of the 21 companies surveyed, 10 offered no computer training, three sent people out for training, four provided only disk-tutorial training and the remaining four provided instructor-led training for their employees on computer operation. One problem noted with computer-buyers is that they expect computers to arrive ready to use and do whatever they want. It takes the average person about 12 hours to learn how to use a common spreadsheet program (a computerized work sheet), assuming he does not give up trying first. Managers who choose to use computers need to be aware of what their employees can do with a computer and what types of information a computer can provide. However, they should not need to know how to generate the information they want. The same can be said for company executives - they should only know what type of information the computers at their employees disposal can provide.

Assuming that an employee can learn how to perform simple tasks on a computer in several days time, managers often incorrectly guess that a person can become proficient in the same amount of time. The new computer user needs to be shown what a software package can do and how to remedy any problems he may encounter (Callaghan, 1985). How to use a computer can be learned in various ways, ranging from the disk-tutorials to instructor led instruction. Callaghan feels that there are two types of computer students: those

who are self-motivated and those who are computerphobic (unsure or scared of computers). In his article, Callaghan states that a self-motivated learner will be able to learn using disk-tutorials and the manuals provided with the software, while a computerphobic person will learn best in an instructor-led program with time provided for hands-on work. Since the training programs offered by many commercial training institutes cost around $200 a day per employee, these programs may be out of the question monetarily for some organizations. However, microcomputer vendors often offer introductory courses at little or no cost to a new computer purchaser. These vendors can tailor training programs to focus on the particular needs of the user and may be able to employ cost-cutting techniques such as using "canned" programs made available by computer manufacturers that are not available to training departments. Callaghan (1985, p. 27) summarizes by stating that "solid human resource planning can determine the best approaches to microcomputer training."

The number of computer vendors in the United States has been steadily increasing since personal computers hit the marketplace. A study conducted in 1983 by Future Computing's Retail Market Group showed that their were 2,500 computer specialty stores in the U.S., up from 1,800 the previous year (Isaacson, 1983). At that time, it was projected that there would be 6,500 stores by the end of 1988. These computer stores are statistically composed of

five categories: Company-owned chains (8.3 percent), Manufacturer-owned chains (24.5 percent), Franchise chains (21.9 percent), Multilocation independents (20.2 percent) and Single-location independents (25.1 percent).

Currently in the United States, there is a glut of microcomputers in the marketplace. Dealers not only have to lower prices in order to sell their products, they have to offer support (such as training) after the sale (Wise, 1985.) Several companies have gotten out of the price-sensitive home and education markets to compete in the rapidly expanding business market. Businesses are willing to pay extra for the service and support they need to operate their computer systems.

Training Provided on Computer Usage

Since the introduction of computers in education, the requests for introductory courses in computers have become more frequent (D'Orazio, 1983). These introductory courses are being offered in elementary schools, high schools, colleges, and universities. With computers being introduced to small children as early as elementary school, many parents are seeking information on computers in an effort to comprehend their children's new knowledge. More and more jobs are being modified to introduce computers into the workstations. Secretaries and office workers, and even

professionals such as doctors and lawyers, are being flooded with information concerning time-saving computers, and many professions now require that applicants for new job positions have some form of professional training on computers.

According to Palko and Hata (1982, p. 70), new technology and the addition of computers in industry are creating a need for technical personnel with "skill sets not envisioned ten years ago." Traditional four year college programs have centered on producing computer educated students in the science and engineering fields, while community colleges have offered classes in the areas of computer operation, high level languages, and business or science applications programming. This trend toward teaching software comprehension in colleges has produced many programming specialists to fill entry level positions in software, while the hardware entry level positions are being filled by individuals with experience in the military or the electronics industry. Stemming from the needs of industry, community colleges have begun to offer studies in the understanding of hardware. Community colleges are better able to adapt their curriculum to the needs of industry than are four year institutions and these two year institutions now have hardware and software programs which coexist on the same campus.

One benefit of using microcomputers in colleges and training departments is networking, that is interconnecting microcomputers either through telephone lines or cables allowing them to "talk" to other microcomputers or mainframes. As pointed out by Harris (1983, p. 6), networking computers allows users at remote sites to become part of the "institutional system while reducing the dependence on large mainframe systems." Advantages of networking microcomputers include low initial cost, centralized data storage and unlimited expansions.

Computers in the Training Environment

Computer instruction can provide many benefits to a training program. Among these benefits are immediate response feedback, active learner participation, variance of rate of instruction and the adaptability of a part or all of the training task to meet a specific need. One of the biggest advantages of CAI is that an instructor can utilize his time more productively once a trainee has started a computer instruction program (Estrine, 1975).

Educational courseware development is still in its infancy. Computers have only been available for general use for the last 15 years, and only recently have they made their way into training departments. Ayers (1980, p. 8), writing on the learner and the computer, stated that "computers can

go beyond their past focus on elementary learning and can branch out to include the more complex computer modes of simulation, inquiry, and dialogue."

There are two types of training a computer can provide: passive and interactive. Passive systems simply provide the information through words, pictures or diagrams and give the learner no control over the system. Interactive systems allow the learner to participate in the training situation by receiving information and then using the information learned. Smith (1983, p. 34) states that the crucial factor in an interactive program is flexibility. The program must "anticipate the needs of trainees, and meet those needs in a variety of ways that also satisfy the requirements of the organization sponsoring the program." An interactive program, when properly designed, will determine the competency level of the learner and provide information on an appropriate level for the situation at hand. This is done through branching techniques which allow the training session to unfold in front of the learner based on the information the learner is able to feedback correctly. This interactive learning style, when properly implemented, closely resembles having a tutor or trainer at hand during the training session.

There are many applications for computer simulation in training. One example is the life-saving cardio-pulminary ressucitation (CPR) classes offered by the American Heart Association. Duc Quy and Covington (1982) cite this type of

use of computers as a prime example of the effectiveness of computer based simulation. By wiring a mannequin to a computer through sensors implanted in its skin, the learner could effectively determine whether the proper force was being applied to the 'patient.' Normal training time to learn CPR had been at least four hours and required an instructor to teach the class prior to the implementation of the computer provided simulation. Once the computer was introduced into the setting, the training time dropped to 20 minutes.

When discussing the traditional drill and practice method employed by many trainers, the computer is a natural for imparting new knowledge. A drill and practice session has been developed for Mountain Bell to train their employees on the proper techniques of installing new telephones. When used as part of the usual 20 hour training given to installers, the computer trained installers who are better than their counterparts receiving only the traditional training (Duc Quy and Covington, 1982).

Bostock and Seifert (1980) point out that while traditional college-level courses in computers are booming, many adult education classes are finding innovative uses for computers as training aids in the classroom. Unfortunately, commercial software that has been purchased by learning institutions has not always lived up to the expectations of educators, thus requiring teachers to create new software packages to aid them in their quest for the perfect teaching

aid. The versatility of computers has allowed them to be used successfully in areas where large samples of data are analyzed as well as where a single problem needs solving. This includes the areas of social sciences where microcomputers can be used to aid the students' understanding of the practices and concepts (such as supply and demand in economics). When properly programmed, a computer can also act as a tutor and a programmed game-player, both examples of the innovations introduced in education.

One use for computers in training is the management of training programs. Computer Managed Instruction (CMI) allows the trainer to track a learner through the training program and can provide up to date information at the push of a few buttons. These CMI programs can also provide services such as performance reports, grouping functions, database management, and test scoring. McIsaac and Baker (1981) state that in the past, CMI systems were implemented on large-scale computers through time-sharing and remote job entry (allowing the computer to work on information processing when it had free spots in its memory as well as time to process the information). With the advent of microcomputers, the trainer has been provided autonomous control over the automated system. Some of the benefits derived from a CMI program on a microcomputer are: (1) low cost, (2) user control, (3) access and (4) convenience.

Quarmby (1984) feels that when designing a computer training curriculum, a balance must be maintained between lecturing and practical exercises. Since people can usually only absorb new information in small doses, a verbal training session should be followed by a practical exercise to reinforce the material that has been orally presented. If one is considering the purchase of a pre-packaged software system, top management should involve the training department at the earliest point possible. The training department will be a valuable interface between the software vendor and those who will use the programs while training. Quarmby also points out that the training department should seek advice from the software vendor or other professionals who have experience with computers in order to achieve a well developed program.

When considering a computer based training program, the HRD manager must determine whether such a program will be cost effective and whether it will provide the results desired. Both pre- and post- evaluations should be conducted on new computer training programs to determine if they are properly designed to meet the needs of the user (McEwing and Roth, 1985). Once a manager has decided that computers meet the above criteria, he needs to convince top management that this new training program is desirable and meets the company's standards by using normal implementation techniques. It should be pointed out that once the program

has been implemented, a goal-free approach evaluation should be conducted to ensure it is not producing undesirable side effects in training.

Zemke (1983) presents a five-step method for convincing top management to implement a computer based training program. Before attempting to sell management on computer training, Zemke stresses that one needs to determine from the start if management is pro- or anti-computer. It may not be worth the effort to attempt to sell management on the idea of computers in training if their minds are already made up. First in Zemke's steps is a literature search to set up a baseline for the computer training idea. Next, one should bring the ideas gathered in the literature search back to his company and determine how others' ideas can best be used by him. A thorough outline of the course is then prepared on which to model the training program. After the outline has been prepared, a quantitative analysis should be conducted to determine cost and placement of the program. Finally, the ideas gathered are presented to management for approval. The information that is gathered from the study needs to be analyzed in the proper light. Just because a trainer feels that computers are the correct approach to training does not mean that this is the only way to enhance employee education.

When considering computer training systems, a manager should look to the future. The fifth generation of computers, that is, computers that can infer and be able to

simulate human thought, are right around the corner in development (Gladwin, 1984). These Intelligent Computer Assisted Instruction (ICAI) systems of hardware and software will be able to provide a natural language interface and a model to derive the trainee's skills and knowledge base, and work with these two bases to provide realistic training. These ICAI systems are still under development, but once they arrive on the training scene, "it will change the ways we look at thinking, learning and training (Gladwin, 1984, p. 22)".

Summary

This chapter has dealt with a review of the literature concerning the broad topic of computers and training. According to TALMIS (1983), of those companies training employees on the use of computers in 1983, the average company was spending around $500 per employee for training. Hall-Sheehy (1985), in a study conducted in the Houston area during 1985, concluded that microcomputer training is a neglected field.

Callaghan (1985), points out that vendors of microcomputers may be able to provide training to their clients at a fraction of the cost charged by commercial training institutes. Vendors can also provide custom training packages while employing cost-cutting instructional techniques. On the topic of computer vendors, Wise (1985) states that due to the large number of microcomputers being

sold, many computer vendors are having to offer enhanced support after the sale of a computer system to stay competitive within the computer market.

Introductory courses on computers are being offered in elementary schools, high schools, colleges and universities (D'Orazio, 1983). Because children are becoming more familiar with computers, many parents are seeking information on computers to keep up with their children's new knowledge.

Smith (1983) writes that their are two types of training a computer can provide: passive and interactive. Passive systems simply provide the information through words or pictures, while interactive systems all the learner to participate in the training situation.

Zemke (1983), and McEwing and Roth (1985), discuss the implementation of computer training programs. They agree that management must be convinced that a computer training program is desirable and beneficial before implementing such a program.

CHAPTER III

METHODOLOGY

The purpose of this study was to determine the content areas in which vendors of microcomputers in the Oklahoma City metropolitan area are providing training, and the instructional methods with which these vendors conduct their training. The study was conducted from January to February, 1986. This chapter specifies the methodology used, and includes a description of the population and sample used, development of the data-gathering instrument, collection of the data, and the data analysis.

Population and Sample

The population of this study consisted of computer vendors listed in the May, 1985 edition of of the Southwestern Bell Telephone Directory Yellow Pages, Greater Oklahoma edition, under the listing of "Computers-Dealers". The total number of businesses surveyed was large enough to employ large sample statistical analysis methods (sample size greater than 30). An attempt was made to contact all businesses

listed in the directory. Twenty of the telephone numbers had been disconnected, possibly indicating that the rapidly changing field of computers also affects the stability of microcomputer dealers.

Development of the Data-Gathering Instrument

A telephone interview was employed in this study to gather data, and an instrument was developed to document computer dealers' responses regarding the types of computer training they provide for their customers. In determining the data gathering technique, the researcher considered both surveys and interviews. Due to time constraints and costs, it was determined that the telephone interview was the best instrument to employ in this study. The interview is more flexible in allowing the respondent to provide information that the researcher can use as feedback to tailor follow-on questions.

Zemke and Kramlinger (1984) give several advantages for using the telephone interview rather than a personal interview. First, between 80 to 90 percent of those called will agree to be interviewed. Second, people tend to be more candid over the telephone than they are face-to-face. The telephone interview also extends the benefit of attention and privacy while giving a sense of immediacy to the respondent.

Disadvantages of the telephone interview are relatively minor. First, they are usually shorter than alternate types of interviews. Telephone interviews also will not allow a respondent to demonstrate any aspects of their answer. Comparing the advantages to the disadvantages, the author of this study decided that a telephone interview was the proper data gathering technique.

The data-gathering instrument was designed by the researcher. The instrument was presented for review to five individuals with computer science degrees who use computers on the job, and who also own microcomputers. It was then presented to an individual who offered computer training through her place of business in Tulsa, Oklahoma, for feedback. Comments from these six individuals were used to update the instrument.

The instrument was then pretested on five computer dealers selected randomly from the Tulsa phone directory. This pre-test was used to update the instrument so that answers to the questions presented could be easily documented in a standardized format. Finally a pilot test was conducted over a two day period with an audience of ten computer dealers selected randomly from the Tulsa phone directory. The responses concerning the format and style of the instrument from the ten dealers were all favorable. This draft of the instrument then served as the final instrument.

Analysis of Data

The data were analyzed by comparing percentages. The surveys were tabulated and divided into four demographic groups: company owned chains, manufacturer owned chains, franchises and independents. The training provided by these four groups was then compared to that provided by the total of all four groups. The data were tabulated by entering them into a Commodore 64 computer running the spreadsheet program MULTIPLAN.

The interviews with dealers who sold microcomputers were also tabulated using MULTIPLAN, and the data were analyzed. The data from microcomputer dealers surveyed were then compared by percentage of responses to each question.

CHAPTER IV

PRESENTATION OF FINDINGS

In this section the results of the interview administered to computer dealers in the Oklahoma City area are presented in detail. This chapter is broken down into nine sections. The sections are presented in the following order: (1) response rate, (2) computer dealer demographics, (3) training provided, (4) format of training, (5) program offerings and frequency of occurrence, (6) instruction level, cost for services and locations, (7) instructors and students, (8) advertisement of services, and (9) dealers' concerns for the future.

Response Rate

An attempt was made to contact 76 computer dealers by telephone. The researcher was unable to contact 20 of the dealers listed in the yellow pages because their telephones had been disconnected. Of the remaining 56 possible respondents, two would not talk to the author due to company restrictions placed on them. A total of 54 interviews were completed for a response rate of 96.4 percent (Table I). This response rate of participants

was considered sufficient and adequate. Those dealers whose phones were no longer working will not be considered in this study.

TABLE I

COMPOSITION OF ALL COMPUTER DEALERS SURVEYED

	NUMBER OF RESPONSES	PERCENTAGE OF RESPONDENTS
Company Owned Chains	6	11.1
Manufacturer Owned Chains	3	5.6
Franchises	3	5.6
Independents	42	77.7
Total	54	100.0

Computer Dealer Demographics

All dealers interviewed were asked to place their business into one of four areas: company owned chains, manufacturer owned chains, franchises, or independents. Of the 54 respondents, three (5.6 percent) were considered to be franchises, three (5.6 percent) were considered manufacturer owned chains, six (11.1 percent) were company

owned chains and the remaining 42 businesses (77.7 percent) were independents (Table I). The average age of the businesses was determined to be 8.7 years. The 54 business employed a total sales force of 287 salespeople for an average of 5.3 at each location.

All dealers were asked to indicate which of three types of computers they sold: personal or micro-computers, business systems, or mainframes. The most common response was personal or microcomputers with 49 (90.7 percent) dealers selling this type. Next were business systems, with 48 (88.9 percent) positive responses, and the least sold system were mainframes with nine dealers (16.7 percent) responding affirmatively. Although exact figures were not generated, the author noted that the most common type of computer sold was the International Business Machine Personal Computer (IBM PC), or a "clone" system which is said to be compatible with this computer.

Training Provided

Each of the dealers was asked if he provided training to his customers. Of the 42 independents interviewed, only 28 (66.7 percent) provided training to their clients, which was the lowest training rate for the four groups. The remaining three groups, franchises, manufacturer owned chains, and company owned chains, although smaller in sample size, indicated that they all (100 percent) provided

some type of training to their clients (Table II). The 14 dealers who did not provide training were asked to indicate if they normally recommended someone who would offer training to their customers. Only four of these 14 dealers (29 percent) did recommend a secondary training source.

TABLE II

DEALERS PROVIDING TRAINING
BY DEMOGRAPHIC GROUPING

	NUMBER OF RESPONSES	RESPONDENTS PROVIDING TRAINING	PERCENTAGE OF RESPONSES
Company Owned Chains	6	6	100.0
Manufacturer Owned Chains	3	3	100.0
Franchises	3	3	100.0
Independents	42	28	66.7
Total	54	40	74.1

There were 49 dealers who indicated that they sold microcomputers when interviewed. Of these 49 microcomputer dealers, 40 (81.6 percent) provided some form of training to their clients. Unless stated otherwise, all numbers presented from this point on in this chapter will be determined from the average of the total responses of

dealers selling microcomputers. When asked if they provided training for software packages 37 (75.5 percent) responded yes; when asked if they provided training in the area of business packages, 39 (79.6 percent) responded yes. Very few dealers (8 yes responses, 16.3 percent) offered training on computer languages or programming techniques. Twenty-one (42.9 percent) of those microcomputer dealers interviewed indicated that they provided an introduction to computer class, and the same number indicated that they offered training covering computer hardware (Table III). Twenty-six respondents (53.1 percent) offered to customize a training program for either individuals or companies.

Format of Training

The microcomputer dealers interviewed were also asked what teaching formats or techniques they used to train their clients. Forty (81.6 percent) of the microcomputer dealers offering training employed hands-on techniques, while 37 (75.5 percent) and 35 (71.4 percent) used demonstration by an instructor and instructor led discussions respectively. Seventeen (34.7 percent) of the microcomputer dealers used a computer provided tutorial technique, and 30 (61.2 percent) indicated they used some form of written manual or tutorial (Table IV). One dealer did not offer training in his store, but did offer computer

training programs for independent study that could be purchased from his company. Twenty-four (48.9 percent) of the dealers employed self-generated books or materials in their training programs.

TABLE III

TRAINING PROVIDED BY MICROCOMPUTER DEALERS

	NUMBER OF RESPONSES	PERCENTAGE OF RESPONDENTS
Existing Programs	40	81.6
Software Packages	37	75.5
Business Packages	39	79.6
Programming Languages/Techniques	8	16.3
Introduction to Computing	21	42.9
Computer Hardware	21	42.9

N=49

Twenty-two dealers (44.9 percent) offered, on a normal basis, the students a chance to critique the training after the program was complete. Only 14 (28.6 percent) of the dealers used a written critique that they could provide to their students.

TABLE IV

FORMAT OF TRAINING USED BY MICROCOMPUTER DEALERS

	NUMBER OF RESPONSES	PERCENTAGE OF RESPONDENTS
Hands on	40	81.6
Demonstration by instructor	37	75.5
Instructor led discussion	35	71.4
Computer Tutorial	17	34.7
Written manual/tutorial	30	61.2

N=49

Program Offerings and Frequency of Occurrence

The microcomputer dealers were asked to provide data concerning the average frequency of course offerings, the times of day classes were offered, the average class size, and the average number of students trained per month. Seventeen dealers (34.6 percent) indicated that they provided classes as needed, eight (16.3 percent) offered their classes one to three times per month, eight (16.3 percent) offered classes from four to nine times, and six (12.2 percent) offered classes ten or more times per month. Forty (81.6 percent) microcomputer dealers dealers indicated they offered training during the morning hours, 37 (75.5 percent) offered them in the afternoon, and seven (14.3 percent) offered them at night. The most frequently described class size contained one to five students (27 yes responses, 55.1 percent), followed by six to ten students (6 yes responses, 12.2 percent), individualized instruction (5 yes responses, 10.2 percent), and ten or more students (3 yes responses, 6.1 percent). Eighteen (36.7 percent) dealers trained between one and ten people per month, 13 (26.5 percent) trained 11 to 30 people each month, and nine (18.4 percent) trained 31 or more people each month.

Instruction Level, Cost For Services, and Locations

The microcomputer dealers were asked to provide information concerning the level of instruction of their programs. Their responses were as follows: 37 (75.5 percent) offered beginning level, 30 (61.2 percent) offered intermediate level, 11 (22.4 percent) offered advanced level and 14 (28.6 percent) offered refresher level training (Table V).

Seven dealers (14.3 percent) offered free training when computer systems or software were purchased from them. The average student cost for training was $36.23 for each hour of instruction. Thirty dealers (61.2 percent) provided books or materials with their training programs.

Twenty-eight (57.1 percent) of the businesses surveyed offered classes at their location, while 32 (65.3 percent) offered to train at the client's site.

Instructors and Students

Thirty-eight (77.6 percent) of those interviewed used their employees as trainers while 12 (24.5 percent) used contractors as either their sole source or to enhance their training programs. Eleven businesses (22.4 percent) used programmers as trainers, 19 (38.8 percent) used individuals with teaching experience of some form, and nine (18.4 percent) used members of their sales force.

TABLE V

LEVEL OF INSTRUCTION FOR CLASSES OFFERED

	NUMBER OF RESPONSES	PERCENTAGE OF RESPONDENTS
Beginning	37	75.5
Intermediate	30	61.2
Advanced	11	22.4
Refresher	14	28.6
Dealers not providing training	9	18.4

N=49

In describing their trainers' qualifications, 29 businesses (59.2 percent) indicated their trainers had some type of college degree. Thirty-five (71.4 percent) of the businesses provided some type of upgrade training to their instructors. The dealers providing training employed a total training staff of 113 individuals, or an average of 2.3 for each business. Of these employee trainers, 100 (88.5 percent of the training force) were full time employees.

The microcomputer dealers providing training were then asked to describe the average computer student based on age and sex. All dealers (100 percent) indicated that the average age per student was between 20 and 45 years. Twenty-one (52.5 percent) indicated that most of their clients were female, four (10.0 percent) said most were male, and 15 (37.5 percent) indicated they trained equal numbers of males and females.

Advertisement of Services

All microcomputer dealers stated that they relied partially on word-of-mouth advertisement for training services. Five (12.5 percent) indicated they advertised in magazines, and two (5.0 percent) said they had placed television ads in the past. Other sources of advertisement included radio, direct mailings, and door-to-door salesmen. It should be noted that all of the dealers surveyed advertised to some extent in the yellow pages of the Oklahoma City telephone directory.

Dealers' Concerns for the Future

The final question requested each of the dealers to identify the biggest challenge to the company's continuing in computer training over the next five years. The responses were broad and varied. Foremost on the dealers' minds was keeping up with technology

affecting computers. Almost every day, trainers must cope with a barrage of new software and hardware being marketed. They must also cope with the volatile nature of the emerging computer industry. Manufacturers, computer systems, and software engineering firms that are here one day may be gone the next.

Even though all dealers basically agreed that "keeping up" with the computer technology is, and will continue to be, their biggest challenge, they expressed conflicting views on other topics. For instance, when discussing follow-up with customers after training had been completed, several dealers felt that the training courses they provided ended their obligation to their customer, while other dealers wanted to make sure their clients continued to be well informed.

One dealer expressed the desire to get his firm out of the small dollar training programs and expand into larger training packages. Complementing this expression, another dealer indicated that customers are becoming more familiar with the idea of using computers, and wanted more complex and powerful systems.

Concerning computer literacy, one dealer indicated that several "computer warehouses" were not providing sufficient training for their students. This lack of proper training in turn led to computer users who were computerphobic or afraid of their systems. He indicated that many of his customers simply needed to be put at ease

with a simple introduction to computer systems. By keeping ahead of computer discounters in the area of training, he felt his share of the market would expand greatly because of the training he offered. In contrast, another dealer stated that many software packages were becoming user-friendly, and could eventually eliminate the need for computer training altogether.

Summary of Findings

An attempt was made to contact 76 Oklahoma City computer dealers of which 20 had either moved, had their phones disconnected, or gone out of business. Of the 54 dealers who would discuss aspects of their business with the author, 40 (70.1 percent) provided some form of training to their clients.

In the review of literature, figures compiled in 1983 were presented which represented a nationwide composition of computer dealers. At that time, 8.3 percent were company-owned chains, 24.5 percent were manufacturer-owned chains, 21.9 percent were franchises and 45.3 percent were independents (single and multilocation combined). In the Oklahoma City area, currently, it was found that 5.6 percent are franchises or manufacturer-owned chains, 11.1 percent are company-owned chains, and 77.7 percent are independents. Due to the small sample size of this study, no significant statements can be made about possible changes in computer dealer composition since 1983.

All of the dealers who considered themselves company owned chains, manufacturer owned chains, or franchises provided training to their customers. Only 28 (66.7 percent) of the 42 independents surveyed offered training of some form.

Of the microcomputer dealers providing training, all of them offered training on the uses of existing programs. Thirty-seven (75.5 percent) offered training on software packages, and 39 (79.6 percent) offered training on what are commonly considered business packages. Only eight (16.3 percent) of the microcomputer dealers provided training on programming languages or techniques. Twenty-one (40.0 percent) dealers provided an introductory class on computers, or offered training on computer hardware.

Forty (81.6 percent) of the 49 microcomputer dealers employed a hands on technique when instructing students. Most used demonstration by the instructor (75.5 percent) or instructor led discussion (71.4 percent) when training students. Written manuals were used by 61.2 percent of the dealers and only 34.7 percent used computer tutorials for training purposes.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The content of this chapter is divided into three sections. The first section presents a summary of the study. The second section contains conclusions drawn from the study, and the third section contains recommendations for further research and study.

Summary

There were three research questions in the study:

(1) What are the demographic characteristics of vendors of microcomputers in the Oklahoma City area?

(2) What are the content areas of training provided by vendors of microcomputers in the Oklahoma City area?

(3) What are the instructional methods of training provided by vendors of microcomputers in the Oklahoma City metropolitan area?

This study consisted of a telephone interview with computer dealers in the Oklahoma City area: and this portion was developed to answer the specific research questions, one through three, as listed in Chapter I.

The survey of literature consisted of an examination of the prevailing thoughts and ideas of educators and trainers that have recently been published. It examined how computers are being used in the field of education, and how training departments of businesses are using computers on the job. The literature review also examined the uses of computers in training, and how simulation and interactive training programs are developed and used. Along these same lines, information was presented on the presentation of materials and testing of skills learned. Finally, a brief discussion on the composition of computer vendors was presented.

The subjects of the study were computer dealers listed in the May 1985 edition of the Southwestern Bell Oklahoma City Yellow Pages Telephone Directory, Greater Oklahoma City edition. An attempt was made to contact 76 of these dealers to conduct the telephone interview with them. Fifty-six of the dealers were able to be contacted, the remaining twenty had either changed their telephone numbers, moved, or gone out of business. When the results of the interview were in, the data were compiled as presented in Chapter IV of this study.

As pointed out by TALMIS (1983), in 1983 the average company was spending around $500 per employee for computer training. Small computer vendors may be an alternate

source of training rather than the traditional on-the-job training programs set up by businesses (Callaghan, 1985). Vendors can often provide training to clients at reduced rates, and since they are familiar with many different software systems, can often tailor training programs to meet the requirements of customers.

Introductory courses on computers are being offered throughout the entire education spectrum. Many parents are seeking training on computers to keep up with their children's expanding knowledge. Computers are being employed as teaching aids in many educational settings.

In the Oklahoma City metropolitan area, microcomputer vendors are providing a large number of training programs on software and business packages. They are also offering introductions to computing and providing training on computer languages. Most of these microcomputer dealers employ hands on teaching techniques, while also using demonstration by instructors, computer tutorials, and written manuals. The majority of the training offered by these dealers is either on the beginning or intermediate level, but they do offer refresher and advanced courses.

Conclusions

Conclusions of this research are as follows:

1. All levels of computer training in education are booming. Computers are being used in the classroom to teach a wide variety of topics.

2. On-the-job computer training could be a neglected field. Although computers are great time saving devices, someone must be trained properly on how to use a computer for derivation of maximum benefits.

3. A trainer should conduct a thorough needs analysis before any computer training program is started.

4. Computers can be effective training devices when properly integrated into a curriculum.

5. A large percentage of computer dealers in the Oklahoma City area provide training to their clients. The training provided by these dealers would normally span the the average computer user's needs in the areas of software and/or business packages. However, there are very few dealers providing training on computer hardware, or programming languages.

6. Only 7 of the 49 microcomputer dealers interviewed offered training during the evening hours. This inflexibility to offer training at nights may cause the personal computer user some problems when seeking training.

7. Only slightly above half of those interviewed actively used critiques to modify existing classes. If more dealers provided critiques, more effective training could result.

8. Very few dealers are using the mass media to inform potential customers of their program offerings.

Recommendations

The following recommendations could be implemented by computer dealers:

1. Offer computer training classes during the evening when more private users could attend.

2. Create training programs in the areas of programming languages and hardware utilization to better prepare the user.

3. Use mass media (newspaper, radio, television) in an attempt to draw a larger clientele.

4. Conduct a training workshop where dealers could discuss ideas on future training programs.

5. More efficient use of contractor provided training could be developed if several dealers pooled their clients and had a single contractor to provide the training. This could also lead to more effective use of the trainers already employed by the dealers.

The following recommendations are made for further study:

1. Conduct a needs assessment of trainees before they are introduced to a computer training program in the Oklahoma City area.

2. Conduct a study of the trainees after training has been provided by a computer dealer to see if he is in fact meeting the needs of his clients.

3. Conduct broad-based and representative sampling concerning computer dealer provided training throughout all of Oklahoma, or the United States.

4. Conduct a study of the content of training provided by vendors of microcomputers versus the instructional format employed.

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APPENDIXES

APPENDIX A

DATA-GATHERING INSTRUMENT

INSTRUMENT

Company name.....

Telephone number.....

Contact.....

(CIRCLE responses where appropriate. Document answers to open-ended questions in space provided.)

1 Do you sell computer hardware of the following types?

Personal/Micro-computers	YES	NO
Business systems	YES	NO
Mainframes	YES	NO

2 What brands do you sell?.....

.....

3 Do you offer any computer training classes to your customers? YES NO

4 If you don't offer training, do you recommend someone to your customers? YES NO

(GET INFORMATION ON DEMOGRAPHICS)

5 Do you offer classes on uses of existing programs?

YES NO

6 Do you offer classes on software packages?

YES NO

Which ones?.....

.....

7 Do you offer classes on business packages?

YES NO

Which ones?.....

.....

8 Do you offer classes on programming techniques or teach programming languages? YES NO

9 Do you offer classes on introduction to computing?

YES NO

10 Do you offer hardware related training?

YES NO

11 When your classes are taught, which of the following instructional methods are used?

Hands-on	YES	NO
Demonstration by instructor	YES	NO
Computer tutorials	YES	NO
Instructor led discussion	YES	NO
Written manuals/tutorials	YES	NO

OTHER.....

.....

.....

12 How often do you offer your classes?

As needed

1-3 times a month

4-9 times a month

10 or more times a month

13 What times do you offer your classes?

Morning

Afternoon

Evening

14 What is your average class size?

Individual basis

1-5

6-10

More than 10

15 How many people do you train per month?

1-10

11-30

31 or more

16 Do you offer tailor made training for either of the following?

Individuals	YES	NO
Companies	YES	NO

17 At what levels are your classes taught?

Beginner

Intermediate

Advanced

Refresher

18 What are the costs for your services per hour?.....

19 Do you provided books? YES NO

20 Do you provide materials? YES NO

21 Do you offer support after the training at no cost?

YES NO

22 Are your programs conducted at:

Your place of business YES NO

Clients location YES NO

Other.....

.....

23 Who are your instructors?.....

.....

24 How do they become instructors?.....

.....

25 What are their qualifications?.....

.....

26 Do instructors get upgrade training? YES NO

27 Do students critique your training? YES NO

28 Do you use a standard critique? YES NO

29 Do you use the critique to modify the classes?

YES NO

30 Do you offer computers at reduced rates to schools or universities? YES NO

31 Do school instructors get reduced training rates?

YES NO

32 Can you describe the average student?

Age.....

Sex.....

33 Do you advertise your services by word of mouth?

YES NO

34 Do you advertise your services in magazines?

YES NO

35 Do you advertise your services on television?

YES NO

36 Do you advertise your services by some other means, and if so what is it? YES NO

.....

.....

DEMOGRAPHICS

38 How long has your company been in operation?.....

39 Is your company considered a: Company Owned Chain

Manufacturer Owned Chain

Franchise

Independent

40 How large is your sales staff?.....

41 How large is your training staff?.....

42 How many full-time employees are on your training staff?.....

43 Over the next five years, what do you see as the biggest challenge for computer dealers who also provide training?..

.....

.....

APPENDIX B

PANEL OF EXPERTS

PANEL OF EXPERTS

Eric L. Bainter, AWACS Geographically Separated Location Liason Officer

Michael Bowen, AWACS Machine Interface Section Chief

James Bushnell, AWACS Executive Program Analyst

Diana Connery, Access Computer Store Owner

Sandy Emrich, AWACS Program Management Specialist

Janice Johnson, AWACS Database Section Chief

2

VITA

Jeffrey Bruce Wright

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Master of Science

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