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Group Lesson Training Packet(s) on the Selection and the Uses of Personal Computers in ther Home

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GROUP LESSON TRAINING PACKET(S) ON THE SELECTION
AND THE USES OF PERSONAL COMPUTERS IN THE HOME

A Project Report
Presented to
The Graduate Faculty
Central Washington University

In Partial Fulfillment
of the Requirements for the Degree
Master of Education

by
Cora Gladys Vowell
April, 1985

GROUP LESSON TRAINING PACKET(S) ON THE SELECTION
AND THE USES OF PERSONAL COMPUTERS IN THE HOME

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Cora G. Vowell

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The purpose of this project report was to provide a group lesson training packet on the selection and the uses of personal computers in the home including information on their history, their basic components, the criteria to evaluate the need for one, and resource materials available on the topic. The instructional materials developed included: a leader's guide, visual aids, a videocassette tape, an activity sheet, information sheets, two evaluation tools, and a partial listing of existing Extension instructional materials on microcomputers.

ACKNOWLEDGMENTS

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CHAPTER I

INTRODUCTION

Less than 10% of the households in the United States contain a microcomputer. Since the microcomputer is a relatively new addition to the home scene, there is still a mixture of curiosity and confusion about its benefits and uses by the family unit. According to Paoletti, "The family needs assistance in feeling it is in control of technological devices in their homes" (Jensen, 1983, p. 2).

"Educators, home economists, cooperative extensionists, financial advisors, and the computer industry, to name a few, conclude that the computer can be one of the most valuable technological tools for the family" (Jensen, 1983, p. 1). In the next few years, the impact of microcomputers on the family will be better researched and some of the questions surrounding its use in the home may have been answered.

Background

The project study began as a result of needs expressed by clientele of Washington State University Cooperative Extension. When Cooperative Extension faculty from the State of Washington met in January, 1983, these needs

determined six projects, one of which was titled, "Implications and Applications of Technology Upon Families."

The six projects provided the program direction for Cooperative Extension family living programs in 1984. The six state projects were presented to the family living program planning committee in Yakima County. The committee in Yakima County along with other counties in central Washington selected microcomputers as one of the lessons to be taught as a leader training.

Statement of the Problem

A group lesson training packet was needed to meet Extension clientele requests for basic awareness of: microcomputer uses in the home, microcomputer terminology, criteria to evaluate the need for a microcomputer, and reliable resource information. This type of training packet on microcomputers was not available from the Extension specialist in Washington State or the Extension specialists from several other states who were contacted. The question became, "Does any state Cooperative Extension office have a leader training packet or other information brochures available on microcomputers that could be adapted for use in Washington State?"

Importance of the Problem

Collins (1982), in the Journal of Home Economics, stated that we are moving into an information age and a new era. The new era includes the computer. The computer

is changing the way things are being done at home, in schools, and at work (p. 17).

Craig expressed Extension's educational role in the new era. "Extension needs to help families see the impact of all this [technology], the potential, and the alternatives for lifestyles including the computers. We need research" (Fleming, 1984, p. 13). The long-term impact of micro-computers on the family is still unknown.

Purpose of the Project

The purpose of the project was to provide Washington State University Cooperative Extension family living agents and volunteer teachers with a set of instructional materials to educate consumers on the selection and uses of micro-computers in the home. The materials were to identify what the consumer needs to consider before purchasing a micro-computer, describe several uses or benefits of a microcomputer to various family members, describe the basic components of a microcomputer, and list some sources for additional information on microcomputers.

The instructional materials were designed to be used by Extension family living agents or volunteer teachers, including Extension Homemakers and other representatives from local organizations, in central Washington. The training session was planned to last 1 1/2 hours.

Limitations

This project was limited to the design of a group lesson training packet for Extension family living agents and volunteer teachers. The training packet included a leader guide, supporting information, and visual aids. The implementation, evaluation, and report of results of the training were not part of this project. The information included in the training packet was based upon the needs expressed by Extension clientele during the 1984 program planning process in central Washington.

Definitions

To clarify meanings of terms in the project study, the following definitions are given:

Cooperative Extension is a program cooperatively funded by the United States Department of Agriculture, landgrant institutions, and county governments to provide off-campus informal teaching in agriculture, family living, community resource development, and 4-H youth.

Extension Homemakers is an independent, nonprofit organization instituted for the purpose of improving the quality of family life and communities. Extension Homemaker members continue their learning and extend learning opportunities to others through Cooperative Extension programs.

Extension specialist is an employee of Cooperative Extension who coordinates and provides leadership for

planning, implementing, evaluating, and reporting educational programs in a specialized subject matter.

Family living agent is an employee of Cooperative Extension who works with subject matter specialists in developing program content for informal, educational programs at the county or area level.

Leader training is a meeting designed to show others how to teach a subject. Leader guides, support information, and visual aids are provided.

Microcomputer is a small but complete computer system. Home computer, personal computer, and microcomputer are interchangeable terms. However, home computer implies family applications, personal computer indicates the feasibility of a person owning one, and microcomputer implies broader applications.

User refers to an individual who is not an expert in computer technology but who uses the computer as a tool to assist in completing various tasks.

Volunteer teacher is a person who assists with Extension programs but is not paid with Extension funds.

CHAPTER II

REVIEW OF RELATED LITERATURE

The majority of the literature on the topic of micro-computer selection and uses in the home was found in magazine articles. The bulk of the research information came from national surveys completed by magazines and research group polls, preliminary research findings from two longitudinal studies, and data from one doctoral dissertation and one master's thesis.

Information in the following areas was reviewed and included in the leader's guide developed for the project study: (a) history of microcomputers, (b) home uses of microcomputers, (c) basic components of microcomputers, (d) criteria of evaluating the purchase of microcomputers, and (e) available resource information. These five areas formed the basis of the review of related literature.

History of Microcomputers

"In thirty years computers have advanced from the lumbering Univac I to the tiny silicon chips far more powerful than the Univac and infinitely more complex" (Stolker, 1981, p. 1). It has been just in the last 10 years that microcomputers, which utilized this new technology, started being used in the home.

In 1975, the microcomputer first became available to be purchased as a kit. Since that time Jensen (1983) stated, "The home computer market has gone through three stages--hobbyist, work-at-home, the elite consumer--and has now entered two more: mass consumer and novelty" (p. 25).

Home Uses of Microcomputers

The microcomputer market consists of four major segments according to Jensen (1983). The largest segment (35%) is the business community followed by educational institutions at about 25%. Home and hobby use account for 15%. Industrial and scientific communities split the balance (p. 11).

The role microcomputers play in the home is not as well defined as their role in business or in industrial and scientific communities. This is partially due to the fact that there is not a typical American family and each family's needs, interests, and budget determine the microcomputer selected and how it is used.

The value placed on home uses for the microcomputer also was discussed. The potential to meet a variety of needs is available but, "For the most part, personal computers will prove their worth to the degree that they fit into your daily life, not to the degree that you adapt your life to be more in step with The Computer Age" (McWilliams, 1983, p. 15). Collins (1982) and Hendrickson (cited in Young,

1984, p. 2) said it in a slightly different way. They thought that people have to look at alternatives and determine if tasks done with personal computers are worth the time and cost (p. 17). According to Smith (1984), "The computer's value increases according to the creativity of the user and the user's delegation of repetitive tasks to the computer" (p. 26). Collins (1982) continued to say, "As is true of any type of equipment, the full potential and efficiency of a personal computer are realized in direct proportion to the operator's skill, knowledge, and purpose and to the sophistication and physical capabilities of the equipment" (pp. 14-15).

Microcomputers have a great deal of flexibility. Microcomputers allow family members to deal with complex problems, keep information timely, enhance learning, and provide individualized solutions (Hathaway, 1984). Jensen (1983) listed the five most common purposes given for purchasing a home computer: computer education for the family, resource management for the family, management of family business, computer education for children, and business applications for the husband (p. 47).

A survey done by Consumer Reports (1983, p. 471) and data from Dickerson (1983, p. 82) and Jensen (1983, p. 88) showed the most frequent uses for microcomputers in the home were playing games, learning to use the computer, and learning computer languages or learning to program. Farther down on the lists were word-processing, home

accounting, technical calculations, solving problems, general education, business accounting, telecommunications, and writing programs for sale. Jensen (1983) concluded, "The lack of useful software, the time required to learn how to use the computer, the newness of it, and the lack of skills to perform desired tasks are contributing factors to how the computer is used in the home" (p. 88).

Two longitudinal studies are looking at the impact of home computers on the family's allocation of time. Some preliminary findings of the New York University study suggested families with home computers watched less television, the children did more homework, and the families spent more time together. The University of California study showed 67% watched television less, 24% increased time spent studying homework, but only 4% of the sample increased time spent with the family while 19% decreased their time spent with the family. The researchers doing this study suggested such changes in time use could lead to a long-term shift in the family lifestyles and values away from pleasure/entertainment-oriented activities to task-oriented activities (Barber, 1984, p. 5).

The average family spent about 15 hours per week with the microcomputer according to Consumer Reports (1983, p. 470) and Worden (1983, p. 3). Jensen (1983) reported over half of the husbands (59%) and sons (55%) used the home computer daily followed by 44% of the daughters and 33% of the wives (p. 54).

When Jensen (1983) asked how the family planned to use the home computer in the future, the top three responses were to supplement the children's education (53%), use for business/professional applications (45%), and for family activities (35%) (p. 66). Many articles (Briskin, 1982; Chin, 1984; Clayton & Griffin, 1983; Ditlea, 1982; Fonosch, 1980; Hollis, 1984; Lambrecht & McClelland, 1982; Wollman, 1982) have taken an even more futuristic look at the home and the role microcomputers will play in the education, jobs, entertainment, hobbies, communication, food preparation, household environment, and health monitoring of or by family members. As the technology matures and becomes less costly, many changes in the home may take place. As Dickerson (1983) stated, "Personal computers are still in the beginning stages of innovation" (p. 89). No one really knows what the impact of microcomputers in the home will be.

Basic Components of a Microcomputer

The two basic components of a microcomputer are called software and hardware. The literature reviewed on these two topics discussed the amount spent by families when they purchased software and hardware. Also, some of the limitations or problems with software and hardware were addressed.

Software

A Microcomputer Research Group survey reported in Microcomputing (1984) showed on the average of \$100 was

spent on initial software purchased for home use and an additional \$180 was spent in the first year after purchase. This compared to business purchases of \$530 initially and \$770 purchased in the first year (p. 2). Jensen (1983) reported an average of \$100 to \$299 was spent on software (p. 44). Consumer Reports (1983) showed \$450 spent for application software (p. 471). No distinction was made between home and business purchases in the last survey.

TALMIS reported software sales by the companies at \$400 million in 1982. The following percentages were spent in these six categories: entertainment 31%, home management 27%, programming 22%, word processing 16%, education 3%, and hobby/art 1% (Hathaway, 1984). Entertainment accounted for 53% of the total amount spent followed by 22% in household management--word processing, budgeting, and data management--according to Stolker (1983).

These percentages may be changing. In Computerware it was cited that entertainment has been the most important application category in the past but education software is rapidly becoming a primary application. Personal productivity programs such as word processing, filing, spreadsheets, budgeting, and tax programs are also increasing in importance (Thompson, 1984, p. 8).

Selection of software that meets specific needs requires careful evaluation (Barden, 1983, pp. 54-57; Consumer's Research Magazine, 1983, pp. 16-17; Hathaway, 1984). Part of the problem of evaluation is related to

the amount of software available. At the end of 1983, Sofsearch International reported in Microcomputing (1984) that the following companies had a large number of software programs available: Apple--6428, TRS-80--5047, IBM--4111, Commodore--2136, MS-DOS--1314, CP/M 86--852 (p. 1). Not all were specifically designed for home use.

It has become almost an impossible task to keep up with all the software programs available. Finding reviews of specific software programs, except the most popular ones, was also mentioned as being difficult to do.

Software manuals and ease of use of software programs were two other common problems mentioned. One out of five complained that manuals were incomplete, unclear, or insufficient in detail in a Consumer Reports' (1983) issue (pp. 470-471). "Ease of use all too often involved a trade-off in power and versatility" (p. 488).

Another problem mentioned by several authors was the quality of software available. According to Stolker, Collins, and Helmick, the potential of home computers in the future depends upon the recognition of the deficiency of useful, goal-oriented software (Jensen, 1983, p. 22).

Hardware

The amount paid for the microcomputer hardware ranged from under \$500 to over \$2,000. The 1983 Consumer Reports' survey showed 31% purchased relatively inexpensive machines, 28% medium priced machines, and the rest

relatively costly machines (p. 471). Jensen's (1983) survey sample showed the largest percentage (41%) purchased home computers for under \$500 (p. 44).

With a lower priced microcomputer, a person can play games, run educational programs, learn operation of computer languages, investigate home accounting, and do limited word processing according to Consumer Reports (1983, p. 477). For serious computing using expanded word processing or accounting with spread sheets, a more sophisticated microcomputer system is required.

Starting with a smaller system may not be the answer if it cannot be expanded. A survey reported in InfoWorld stated 25% of families who bought one for under \$300 did not use it compared to under 5% of families who bought one over \$1,000 who did not use it (Hathaway, 1984).

Another item discussed was repair service costs. The 1983 Consumer Reports' survey found that more than half had repairs done on the computer hardware. Disk drives followed by printers were listed one and two respectively. Half of the repairs were covered under the warranty and the owners did not pay for them. Repair bills of \$50 or less were paid by 28% of the sample and 10% of the sample paid \$100 or more. The length of time needed to repair the hardware was more than a day or 2 for 50% of the repairs, with 25% taking 8 days to 1 month. Another 7% were down over a month (p. 471).

Evaluating the Purchase of a Microcomputer

When considering the purchase of a microcomputer, the decision making process is similar to any other major purchasing decision. Consideration of present and future needs, investigation of options, and the determination of the amount of time and money available all affect the final decision of what or even whether to buy.

During this phase, a person's attitude toward using a microcomputer, the value of specific microcomputer applications in the home, and the availability of time to learn how to use a microcomputer should be explored (Collins, 1982, pp. 14-17; McWilliams, 1983, pp. 299-305; Stolker, 1981, pp. 1-6).

Several surveys asked questions about a person's ability to use a microcomputer. The Microcomputer Research Group stated approximately 15% of United States households contain at least one microcomputer user--in school, at home, or on the job (cited in Microcomputing, 1984, pp. 1-2). A Louis Harris poll found 45% of the general public said that they knew how to use a computer (Carlson, 1984, p. 2). Seventy-five percent of the Consumer Reports' survey (1983) had received formal computer training or used one at school or work (p. 470). In Dickerson's (1983) sample, 90% said that their children had been exposed to computers through friends, school, or family.

If a decision is made to buy a microcomputer, then the choice becomes which model to buy. A closer look at needs

and specific uses starts the process (Bowes, 1983, pp. 18-21; Jensen, 1984; Stolker, 1981, pp. 1-6). Then comes the consideration of budget, software, hardware, place of purchase, systems compatibility, expandability, service, and placement in the home.

The main difference between the personal computer purchasing decision and other purchasing decisions is related to a person's unfamiliarity with the product. An understanding of some basic computer principles of how they operate will help a potential computer user understand the capabilities and limitations of a computer system. Not being intimidated by a computer takes using one to find out what they can and cannot do.

Bowes (1983) stated,

In almost every instance, dissatisfaction can be traced to two factors: a failure to define adequately what the computer was to be used for, or a lack of understanding as to what was available in the marketplace. More often than not it's a combination of both. (p. 18)

Hendrickson made a similar comment, "Purchasing a computer can be stressful--deciding what the computer can do for you, what to buy and from whom" (Young, 1984, p. 2).

The Number of Microcomputers in the Home

In 1980, approximately 1 million microcomputers were sold. In 1982, the number increased to 3 million. In 1983, the total was 5 million (Hathaway, 1984). Microcomputers purchased for home use were included in the total number of units sold but were not identified specifically.

A Consumer Reports' (1983) survey of readers who already owned a computer found that 46% purchased their computer for home use only. Another 41% had intended it for business and home purposes. The remaining 19% had bought it primarily for business purposes (p. 470).

The percentage of American homes said to contain a microcomputer ranged from 1-2% (McWilliams, 1983, p. 141) to 10% (Carlson, 1984, p. 2). Predictions for future sales varied from author to author. Of the consumers who presently owned a microcomputer, 46% planned another purchase some time between 1984 and 1990 (Remich, 1983, p. 53). Predictions about future purchases by nonowners were tabulated by Harris and Dickerson. The Louis Harris poll found 50% of the general public expected to own a microcomputer within 5 years (Carlson, 1984, p. 2). In Dickerson's sample, 36% of nonowners indicated their interest to purchase a microcomputer within 5 years (1983, p. 89).

Characteristics of Home Computer Owners

Marketing surveys and studies have shown home computer owners to have some common characteristics. The demographic data showed them to be male, below age 50, college educated, with incomes about \$30,000 per year (Dickerson, 1983, p. 58; Georgas, 1984, p. 53; Jensen, 1983, p. 26). The purchasing decision was also more often made by a male. In 75% of the cases, a male made the decision. Twenty-one

percent of the time it was a joint purchase decision (Dickerson, 1983, p. 89).

Dickerson (1983) used additional variables to correctly classify owners of home computers. She found the best predictors of ownership were responses to these five categories: video television games, programmable pocket calculators, culinary enthusiasts, information seekers, and home ownership. Computer owners had more experience or interest in video television games and programmable pocket calculators (p. 62), and were least interested in the culinary and aesthetic variables. Computer owners tended to be information seekers and also homeowners. Dickerson's other findings showed that owners considered themselves self-designated opinion leaders, that they were financially satisfied, and that they were homebodies. They also tended to be married and in professional or technical occupations (p. 86).

Hendrickson stated, "To date, people who have purchased computers and use them the most are: those who use computers on the job, or who have small business interests, or who like to be one of the first to use technology--technology buffs" (Young, 1984, p. 2).

Available Resource Information

There were over 200 makes and models of personal computers on the market in 1983 (McWilliams, 1983, p. 189). To help in the selection process, experts advised using the

variety of resource information available. Their suggestions included reading general literature, taking a class, attending a user's group meeting, talking to owners, visiting computer stores, looking at reviews in literature, and trying out different hardware and software (Jensen, 1984; Stoker, 1981, pp. 1-2).

Stolker (1982) also suggested that potential buyers of home computers read to become familiar with trends and topics in the field of personal computing. His list of the best home computing periodicals included Byte, Creative Computing, InfoWorld, Microcomputing, Personal Computing, and Popular Computing (pp. 18-20).

Summary

Several opinions about whether a family needs a micro-computer in the home have been expressed. Hendrickson stated, "There are many practical computer uses for managing a home but for most consumers home management uses by themselves probably do not warrant the expense of a computer system at this time" (Young, 1984, p. 2). Jaffe's (1982) statement was,

Systems will be getting smaller, cheaper, less fragile, and easier to use. However, the workload of the homemaker in charge of the nuclear family is not getting significantly more complicated. Thus, the need for even a small computer in such a setting is open to question. (p. 28)

On the other hand, after a Louis Harris poll, Harris summarized, "Overwhelming majorities see real and serious and abiding benefits from the dramatic growth of the computers in their lives" (Carlson, 1984, p. 2).

According to Stolker, McAllister, Ketil, Collins, and Jensen, the key to unlocking the potential of the computer in the home is application software. "Until the computer is integrated into the family, and together they perform necessary tasks, the home computer will not be a useful tool to the family" (Jensen, 1983, p. 21). California's Stanford Research Institute International asked 80,000 consumers how they would like the computer in the marketplace to be changed. They said that home computers needed to be more reliable, easier-to-operate, less expensive, and have friendlier offerings (Quinones, 1982, p. 32).

Will there be a computer in as many homes as there now are televisions? At this time, no one can accurately predict the answer.

CHAPTER III

PROCEDURES OF THE PROJECT STUDY

The development of a group lesson training packet on the selection and uses of microcomputers in the home began with the needs expressed by clientele of Washington State University Cooperative Extension as discussed in Chapter I. Previous leader trainings done in other family living subject areas provided the general format used to show volunteer teachers in central Washington how to teach a subject using leader's guides, support information, and visual aids.

Preparation and Implementation

The training session was planned to last 1 1/2 hours. The time limitation required additional input from the volunteer teachers to determine the specific information that they wanted covered and their level of knowledge on microcomputers.

A cover letter and questionnaire (Appendixes A and B) were developed and mailed to Extension Homemaker club presidents in central Washington. Two Extension Homemakers per club were requested to complete the questionnaire. A total of 22 questionnaires were returned from the 100 mailed

to Extension Homemakers. The tabulation of the questionnaire information (Appendix C) provided the additional background on program participants' knowledge level and their interest in microcomputers.

The next step involved contacting other Cooperative Extension state offices. A mailing to all 50 states requested existing Cooperative Extension education materials on the subject of microcomputers. None of the materials were in the format used to present a volunteer teacher training. They instead provided additional reference and resource information (Appendix D).

Using the information gained from the questionnaire, resource information was selected to be included in the leader training packet to be used by the volunteer teachers. The lesson included objectives, visual aids including a videocassette tape, a leader's guide, an activity sheet, an information sheet, and an evaluation form.

Volunteer teachers attended a training session in one of the five locations where it was taught. After attending the training session, the volunteer teacher taught the program to a club. Evaluations of the program were completed by the volunteer teachers and the club members.

An additional evaluation of the program was mailed to volunteer teachers several months later to determine the number of people reached, the number of hours spent doing the lesson, and the results of the lesson (Appendix E). The results of the survey along with a general summary of

the project study were included in an annual narrative report to Washington State University Cooperative Extension (Appendix F).

CHAPTER IV

RESULTS OF THE PROJECT STUDY

The group lesson training packet was titled, At Home . . . with the Personal Computer. The lesson as presented to volunteer teachers included the following instructional materials: a leader's guide, visual aids, an Extension bulletin, an activity sheet, information sheets, and an evaluation form.

Teacher/Leader Guide

The guide provided the volunteer teacher with a list of materials needed to teach the lesson, the four objectives of the lesson, and the basic information to be taught in the lesson. The main portion of the guide provided information about microcomputers. The volunteer teachers were instructed how to share the information during their presentations to club members. Suggestions on how to present the information were identified by using script type.

The objectives of the lesson were based upon the response on the 22 questionnaires returned by possible program participants and the data collected during the central Washington program planning process. The

objectives were later used in the development of the questions included on the evaluation form.

Visual Aids

The visual aids in the packet included nine illustrations. They were made available as overhead transparencies. The volunteer teachers were shown examples of computer publications, a floppy disk, a user's manual, and were instructed to provide examples of these products when they presented the lesson.

Optional materials that were available for use included a slide set called, Home Use of Microcomputers. It was shown during the program presentations to the volunteer teachers. It was also suggested that an actual demonstration using the software program would improve the presentation. A microcomputer was used in one of the training sessions for volunteer teachers.

Handouts

Microcomputers in the Home, Extension Bulletin 1192, was provided to volunteer teachers to be used with the lesson. It gave volunteer teachers an additional reference to use and study.

Handouts for each participant included an activity sheet called, What's Your Computer Profile? It was adapted from Mary Dee Dickerson's doctoral dissertation on characteristics of owners and nonowners of personal computers. Permission was received from J. C. Penny

Company to include this activity in the training packet. Other handout materials for program participants included Seven Questions to Ask Yourself and How to Shop for a Home Computer.

Evaluation Form

An evaluation form completed by volunteer teachers provided input to evaluate changes made in knowledge about microcomputers before and after attending the training session. The second portion of the evaluation let the volunteer teachers rate the class.

Videocassette Tape

After the group lesson training packet was completed, a videocassette tape was recorded. It included similar information presented in the lesson along with interviews with microcomputer owners. It was made available to volunteer teachers unable to attend the volunteer teacher training and to other interested clientele.

Project Study Materials

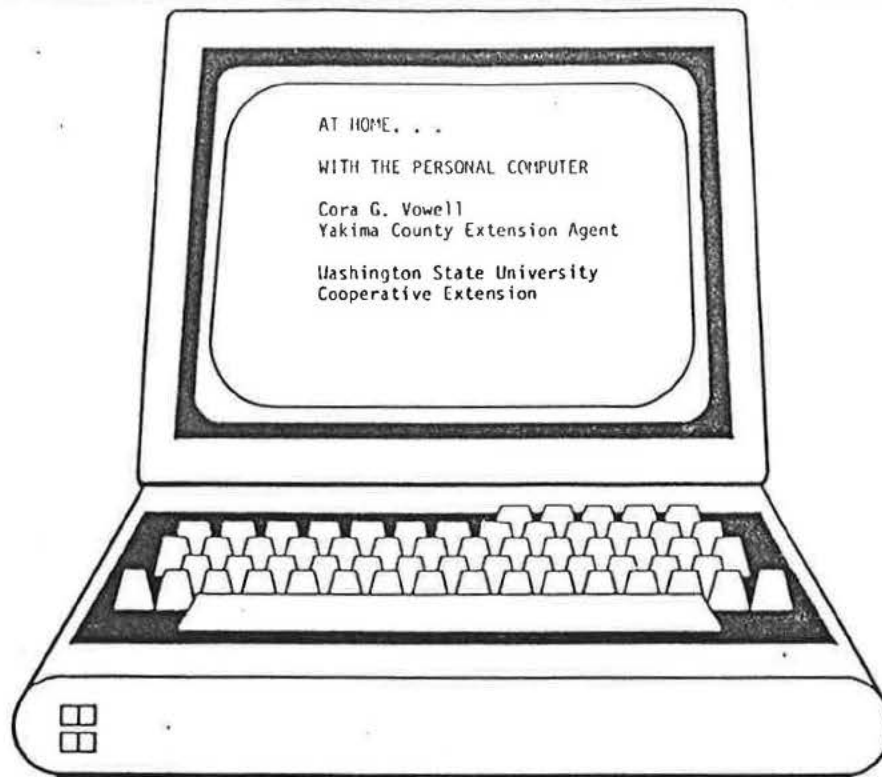
The project will be paginated as a separate entity. Chapter V, Summary, Conclusions, and Recommendations, will resume this sequence as page 26.

AT HOME . . . WITH THE PERSONAL COMPUTER

By

Cora G. Vowell

TEACHER/LEADER GUIDE



TEACHER/LEADER GUIDE

MATERIALS NEEDED:

1. Visual aids: Illustrations 1-9
Computer publications
Floppy disk and/or cassette tape
User's manual
2. Optional: Home Use of Microcomputers - slide set
(order through County Extension Office)
Arrange for demonstration of computer hardware and software
3. Handouts for teacher/leader only: Teacher/Leader Guide
Microcomputers in the Home EB 1192 (25¢)
4. Handouts for each participant: What's Your Computer Profile?
How to Shop for a Home Computer
Evaluation form

OBJECTIVES:

- The participants will
- *become aware of home uses for the personal computer.
 - *learn terms that describe the basic components of a personal computer.
 - *become aware of resources-publications, classes, etc. - to learn more about personal computers.
 - *develop their own set of criteria for evaluating the purchase of a personal computer.

Cooperative Extension Employment & Programs are available to all without discrimination.

WASHINGTON STATE UNIVERSITY AND THE U.S. DEPARTMENT OF AGRICULTURE COOPERATING

AT HOME WITH THE PERSONAL COMPUTER

Introduction

Personal computers are also called home computers or microcomputers. "Micro" refers to the size of the machine in comparison to larger mainframe computers. A home computer is simply a computer found in someone's home rather than an office or a school. "Personal" indicates the machine's ease-of-use and the feasibility of an average person owning one.

Personal computers are able to rapidly manipulate a large amount of information, store it, and quickly find it again. Most people don't need to know how a personal computer works. What's important to know is how to operate one.

As Peter McWilliams said in *The Personal Computer Book*, "How many know how their refrigerator works? Let's have a show of hands. Your cassette tape recorder? Your car? Your house plants? Your liver? Does it really matter if you don't? All that matters is that you know how to run it, play it, drive it, water it, or leave it blessedly alone so that it can operate as designed, unmolested...Somewhere there is an expert who does know how it works - or at least how to fix it - and that's all that's necessary." (p.36)

Personal Computer History Book

While computers have been around for several decades, until recently they were expensive, complex and space consuming. In the 1960's, the innovation of the silicon chip revolutionized the industry. Review the history dates below with visuals:

- 400 B.C. - Abacus: beads strung on wires
- 1642 - Pascal: improved the rotary wheel calculator
- 1673 - Leibniz: added multiplication and division to rotary wheel calculator; new concept of binary numbers
- 1835 - Babbage: analytical engine design using punched cards, programing, memory and printout
- 1850 - Boole: Boolean algebra, system of logic used by modern computers
- 1889 - Hollerith: first electrically driven computer used for 1890 census; later in life affiliated with IBM
- 1941 - Collossus: first electronic digital computer
- 1945 - ENIAC: built at the University of Pennsylvania; contained 18,000 vacuum tubes
- 1951 - UNIVAC: first electronic digital computer designed for commercial use; Census Bureau first customer
- 1960's - Transistors: replaced vacuum tubes which were replaced by silicon chips
- 1965 - Minicomputer: first produced
- 1970 - Integrated circuits: reduced size of computers
- 1971 - Programmable microprocessor: combined all elements of conventional computers
- 1975 - Microcomputer: first produced as kit for hobbyist
- 1977 - Personal computer: first preassumed unit for sale

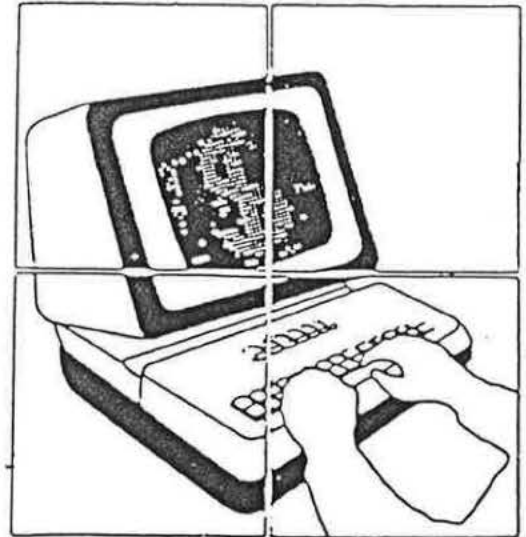
The computer market has expanded into the home. In 1980, about one million microcomputers were sold and in 1982 over three million were sold. The micrcomputer is changing our lives. But remember, our needs or uses for the microcomputer will also shape the future of the microcomputer industry.

A lot depends upon what you want your personal computer to do, what machine and accessories you have, and how much time you want to spend with your machine. With the right programs called software and proper equipment called hardware the computer can help you manage information, educate and entertain yourself, monitor and operate devices, communicate with others, and learn programming.

Identify what a personal computer will and will not do. Refer to the sections below for ideas to present and EB 1192 Microcomputers in the Home. Use visuals provided.

With the Right Software and Hardware...

1. Home management is one of the largest groups of applications. It includes budgeting, word processing, inventory and record keeping. It's important to remember the computer user must give the computer all the information it needs to perform these functions.
2. Education programs allow the computer user to learn facts at his/her own pace and to practice skills. The computer acts as a tutor.
3. Entertainment can be of interest to both adults and children. There are hundreds of games available and for the hobbyist, the hardware itself is fun. Games are usually written to work on one brand of computer.
4. Communication and information packages allow the telephone and the personal computer to provide you access to information on the stock market, airline schedules, etc. Subscription services and long distance calls add to the cost of these programs and tie up the telephone for incoming calls.
5. Programing lets you write your own computer instructions as well as using prepared software programs. This gives flexibility, but is time consuming and sometimes a frustrating process - just like any other hobby!



Four Things A Personal Computer Won't Do

1. A personal computer won't solve every problem. It can help you find better and faster ways of doing some things your household does do, but it can't organize your finances if they aren't organized already. Some records are still best kept with pencil and paper.
2. A personal computer won't make decisions. It can help retrieve and manipulate information but subjective evaluation is something only you can do.
3. A computer won't always be right. The information it puts out is only as good as the information put into it. Mistakes are usually due to operator error but are sometimes the fault of the software or the computer.
4. A computer, by itself, won't save you money. Personal computers require a sizeable amount of money to buy and time to learn how to operate. But it will provide you with new ways of doing things and will expand your capabilities in ways that may really pay off in the long run.

As was mentioned, most people don't have to know how a computer works but in order to understand and compare various features of personal computers, you need to understand some of the terms and their definitions.

Explain the basic parts of a personal computer using the illustration "Components of the Personal Computer" or use an actual personal computer.

1. The central processing unit (CPU) is the brains of the computer. The micro-processor in the personal computer is the CPU. It controls all operations of all parts of the computer and does the actual calculations. The keyboard usually houses the CPU.

Most personal computers have 8-bit microprocessors, but more and more 16-bit microprocessors are becoming available in personal computers. An 8-bit microprocessor can run eight bits at a time. A 16-bit microprocessor can run 16 bits at a time.

Use visual to define terms.

The word bit is formed from the letters in the two words binary digit. Binary means two and is the basis for calculations in all computers. This two digit number system consists of the digits 0 and 1, which are represented in the computer as the presence or absence of electrical impulses.

A bit is the smallest unit of information that the computer can recognize. A group of bits - usually 8 - is called a byte.

The data is entered into a computer using letters such as a,b,c; the numbers 0 to 9, and special symbols like +, . * . These are called characters. A byte can be used to represent a character.

The computer takes these characters that are typed into the keyboard and converts them into the binary system so it can compute the information. It then converts them back into the characters we can understand. It does this at about one-fourth the speed of light.

2. The memory of the computer stores instructions and information and acts like a large electronic filing cabinet. The unit of measurement for the size of a computer's memory is the kilobyte. A kilobyte (K) is 1024 bytes.

There are two kinds of memory available in most computers: ROM and RAM.

ROM and RAM

Read Only Memory (ROM) is the memory that is permanently loaded during the manufacturing process and cannot be altered. It contains fixed data or instructions. A computer can use information in ROM but cannot change it. It remains in the computer when the power is turned off. Microcomputers often have 10K to 26K of ROM memory.

Random Access Memory (RAM) holds the information you type into the computer and will return data when needed. It can be changed by putting new information where old information was stored. If you turn off the computer, your information will be erased unless you first store or record your information.

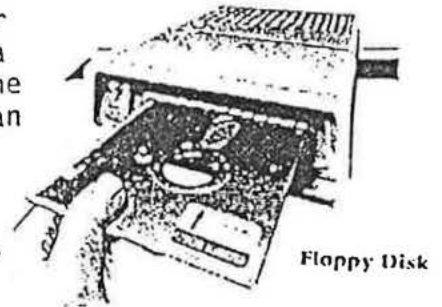
Most lower priced personal computers start with 16K RAM memory or less. Memory can be expanded in some models by buying add-on memory modules. Most personal computers do not need to have more than 48K to 64K RAM.

3. Storage devices such as cartridges, cassette tapes and disks give you a way to keep information and put information and programs into the computer. Each type of storage has advantages and disadvantages. *Show examples.*

A cartridge plugs into the computer console. When you unplug the cartridge any information you've put into the computer is erased. Cartridges are limited in program sophistication.

The cassette tape and tape recorder are used to enter information and instruct the computer. The cassette tape/tape recorder system is less expensive than the disk/disk drive system.

A "floppy" disk and disk drive work together to enter information and instruct the computer. The size of a floppy disk can be 3½", 5¼" or 8". The disk loads the program and information into the computer in less than one minute compared to about five to ten minutes for the cassette tape. One disk drive is adequate for most purposes, but two make it easier to copy data or to use a program in one drive and data in another.



4. The input device could be a keyboard, game joystick, a light pen or a mouse. Input devices for other special applications are also available. They all allow you to enter commands or information into the computer.

For most personal computers a typewriter-like keyboard is the input device. Some keyboards have numeric keypads for entering numbers more easily. Detachable keyboards are becoming more common.

5. The output devices transfer programs or information from the computer and print it on a display screen or paper.

The display screen can be a television or a monitor. Monitors are connected directly to the computer and designed to give clear images. Green phosphor screens or amber screens reduce eyestrain. Color monitors are often used for games and graphics.

The printer is a peripheral device that's useful but not necessary for operating the personal computer. With a printer, "hard copy" is produced on paper.

Dot-matrix printers form characters with small dots. They are necessary for intricate graphics. Letter quality printers print slower and cost more than dot-matrix printers but have better quality type. *Show visual example of the two types.*

A modem is both an input and output device. It is used to send or receive messages through telephone wires. A modem transforms computer's electrical pulses into audible tones for transmission over the phone line to another computer and then reverses the process for incoming tones. With a modem and a matching communications program, the personal computer allows you to communicate with commercial data base sources as AP, UPI, Dow Jones, the Source, and AGNET computers in Nebraska.

Computer Software

Software is essential to successful computing. A software program is a set of step-by-step instructions that is written in a language that a computer can understand, and that tells it what to do. There are two types of software: systems software and applications software.

Systems software contains the special instructions usually provided by the manufacturer that tell the computer how to handle the things you are going to tell it to do. The language which a computer will recognize depends upon what the manufacturer originally programmed into ROM. BASIC is the most common computer language.

The operating system tells the computer how to operate the input, output and peripherals in your system. CP/M is one operating system. Many manufacturers have their own operating systems designed for their computer models.

If you write your own software, you have to learn how to communicate with your computer. Learning to program takes time and effort.

Applications software tells the computer how to do specific jobs you want it to do. Many application software programs you buy involve little more than placing software in the computer, typing in information and responding to various questions that appear on the screen.

Software is written by many people today. Manufacturers, independent entrepreneurs, professionals and hobbyists are all writing programs. Not all software is of equal quality. The home use software is limited at the present time. Some general purpose software is useful for word processing, electronic spreadsheets, and data base management.

Use the slide set "Home Use of Microcomputers" to review the components of the personal computer and learn how three families are using their personal computer. Invite personal computer owner(s) to discuss their uses.

What's Your Computer Profile?

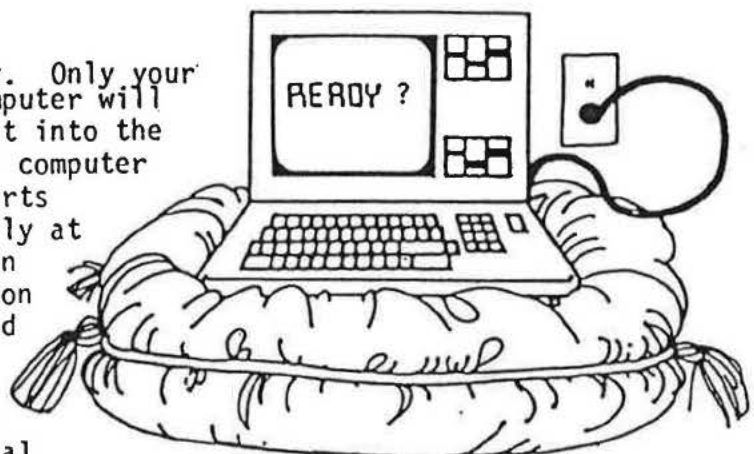
It is estimated that one-to-two percent of all American homes have a personal computer. The home that has a personal computer today is a pioneer of the computer age.

How well do you fit the personal computer owner profile? Do the activity "What's Your Computer Profile?" and see how many yes answers you have.

Deciding If And What to Buy

There is no typical American family. Only your family can decide if a personal computer will fit a need, fill an interest and fit into the budget. The purchase of a personal computer is a major consumer decision. Experts agree your family should look closely at their present and future needs, then do a lot of reading and investigation before deciding if your family would use a personal computer.

Be sure to ask questions of friends and associates who may own a personal computer or work with one. Ask them to let you practice on their computer. Usually people who are knowledgeable are happy to help.



Try to avoid unrealistic expectations. Dissatisfaction after purchasing a personal computer is often caused by "a failure to define adequately what the computer was to be used for or a lack of understanding as to what was available in the market place. More often than not, it's a combination of both."
(page 18, The Personal Computer Buyer's Guide)

Decisions, Decisions

Explain the decision making process.

1. The first and most important step is to decide exactly what it is you expect from a personal computer. List the ways in which you and each family member could use a computer. Keep in mind future needs. Then decide which ones are the most important. Seldom does one personal computer do everything equally well, at the same speed, and at the same cost as another.

That is part of the reason why there are a wide range of models and prices available. There are ones better suited for business, home management, educational and recreational uses. Prices range from less than a hundred dollars for game computers with limited expandability to thousands of dollars for more versatile, complex systems.

2. Second, identify the software currently available to meet your needs and determine how much work you will have to do to get it to do what you had in mind. Remember that it takes time for you to learn how to use the personal computer and the software program before it will perform for you as it did for the salesperson.

Software programs developed for home use are not as vast or as useful as those developed for business because it's a new and growing market. Software varies in cost and quality. Shop around and try the software before you buy if possible. Talk to objective, knowledgeable people and read reviews of the software in magazines. Ask how accurate the data base is for the program and whether it can be updated. Determine which personal computer will run the program and the minimum RAM needed to accomodate the program.

When evaluating software, consider how easy it is to use. Is it "user friendly" or difficult for you to figure out what to do next? Is it menu driven with options listed on the screen? Are there built-in instructions if you are in trouble and need help? What happens when you make an error? Does the personal computer let you know? How hard is it to enter information and make corrections? How adaptable is it to various uses and users?

3. Third, identify the hardware currently available that will support the software packages which best suit your primary needs and your future needs. Determine which additional accessories are needed. Often the price quoted is for the computer itself and a keyboard.

4. Deciding how much you want to spend now and in the future is the fourth consideration. You can anticipate spending more money along the way for additional software and hardware. There are also other possible expenses you can expect such as paper for the printer, disks and disk holders, and subscriptions to computer magazines and books. Learner programs in stores, courses available in your community and user's groups provide information but also add additional costs.

Now is the time to try out the leading candidate and add up the costs. Take notes on models, features, support services and costs. Jot down pro's and con's of various models immediately after using them.

The hardware, software and peripherals need to be compatible. The only way to be sure they are is to run the software on the personal computer and use the peripheral equipment needed.

Demonstrate or have someone demonstrate a software program for home use.

Selecting a Dealer

If you've decided to purchase a personal computer, it's just as important to shop for a dealer as it is to shop for the personal computer itself. Consider after-the-sale dealer support and services. You need to be able to contact someone when you run into a problem and can't figure out what to do next.

Keep in mind that the kind of product and service you get depends to a large degree on the type of store you choose. Buying by mail-order or at discount stores may result in a good sale price but limited service and support before and after the purchase.

Paying more doesn't guarantee quality support. Here are some things to consider when selecting a dealer: *Use visual "Selecting a Dealer".*

- How friendly and knowledgeable are the salespeople? Look for a store that properly trains its personnel to work with you before and after your purchase.
- What type of warranty is included - is it partial or complete? Ask about breakdowns and servicing the machine. Look for an on-site service department or find out where repairs are made, how long repairs take and whether loaners are available.
- What after-the-sale support is provided? Ask about hotline telephone numbers and classes on using hardware and software. Some stores actively seek good software programs and demonstration copies for their customers.

Yes or No?

Given your needs, the available software and hardware and their costs, decide if now is the right time to buy a personal computer. Only you can make that decision.

If yes, buy it and enjoy it. Take your time to gather information and make your final selection. Then feel good about your purchase. *Show visual "Humans and Computers".*

If this is not the time, remember new packages are coming out daily. A short wait may make a world of difference.

Sources of Information

Show or list several magazines and books available in bookstores and libraries in your community.

The personal computer field is changing rapidly. The latest issues of magazines and publications are needed for up-to-date information. Three computer magazines are listed below.

BYTE. Monthly. \$19. Byte Publications, 70 Main St., Peterborough, NH 03458. Subscriptions: P.O. Box 590, Martinsville, NJ 08836.

For those with a grasp of some of the fundamental concepts, who feel at home talking bytes, baud, and psuedo-code. Each issue includes several articles around a common theme.

INFOWORLD. Weekly. \$25. Infoworld, 375 Cochituate Road, Box 880, Framingham, MA 01701.

The most consistent software reviews in the business--extensive, descriptive, and large in number. Some hardware reviews as well. Publishes InfoWorld Report Cards with reviews of computers, software, and peripherals.

POPULAR COMPUTING. (Formerly OnComputing) Monthly. \$18. Popular Computing, 70 Main St., Peterborough, NH 03458. Subscriptions: P.O. Box 307, Martinsville, NH 08836.

An introduction to the field for the would-be micro purchaser and owner of a microcomputer. Issues include several articles around a common theme.

Three other sources of information are:

Computers: Should you take one into your home? (1983).
Consumer Reports, September issue, pp. 461-488, October issue pp. 531-544.

Home Computers. (1983). J.C. Penney Company, Inc., 1301 Avenue of the Americas, NYC 10019. (JCP#8653 - 50¢ single copy).

Tips on Buying a Home Computer. (1983) Council of Better Business Bureaus, Inc., 1515 Wilson Blvd., Arlington, VA 22209 (#24-183 - single copy free).

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WITH THE RIGHT SOFTWARE AND HARDWARE...

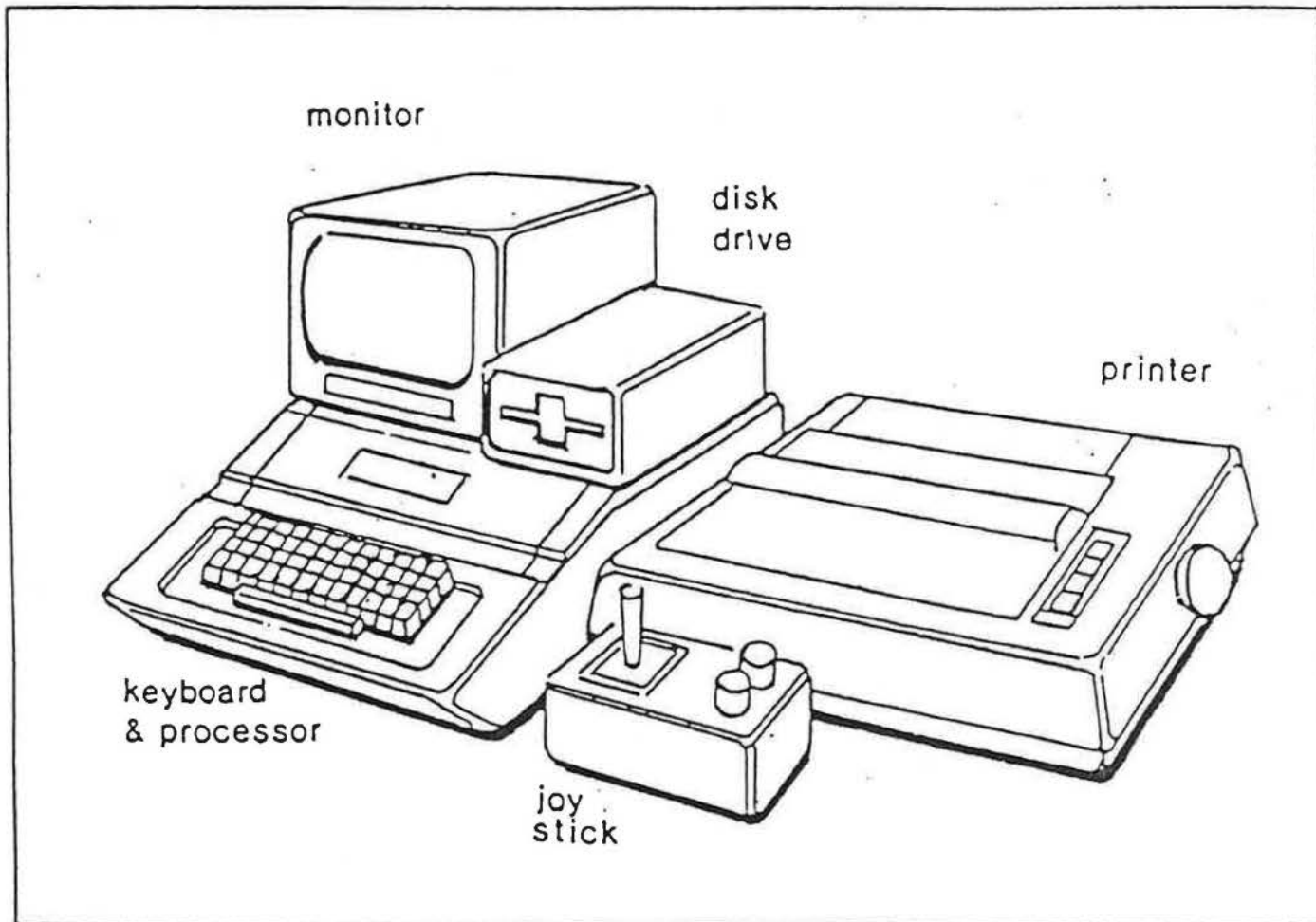
- home management
- education
- entertainment
- communication and information
- programming

A PERSONAL COMPUTER WON'T

- solve every problem
- make decisions
- always be right
- by itself, save you money

Please note: A cartoon has been redacted due to copyright concerns.

COMPONENTS OF THE COMPUTER



BIT	digits 0 and 1
BYTE	group of bits
CHARACTERS	letters, numbers, symbols
K	1024 bytes
ROM	read only memory
RAM	random access memory

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DECISIONS, DECISIONS

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- expectations and uses

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- software availability

- hardware availability

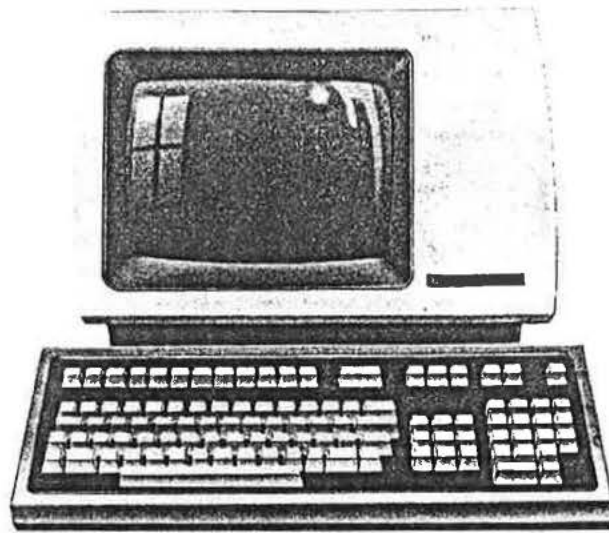
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- budget

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SELECTING A DEALER

- properly trained personnel
- warranty and repair
- support services



COOPERATIVE EXTENSION

MICROCOMPUTERS IN THE HOME

Extension Bulletin 1192

To some the computer is a way to effortless existence; to others it calls forth images of depersonalization and electric shock treatment. For one family, the new electronic device brings order into a cluttered existence and improves the performance of family members at school and at work. For another family, it imposes new demands on the budget, on the living space, on leisure time, and on other scarce resources such as the television and telephone.

Yet, small-scale versions of machines that revolutionized business management are projected to enter millions of households in the near future. The microcomputer has become part of the household equipment.

A closer look at the technology and the terminology helps you understand the potential for computers in the home.



MICROCOMPUTERS IN THE HOME

The term *computer* can be applied to a variety of electronic devices that are able to perform according to a programmed set of instructions.

The term *personal computer* refers to the new micro-sized machine. It also refers to the machine's friendliness – how easily a person not trained in computer programming or operation can make it perform.

The term *household computer* refers to a small, fairly portable machine with a typewriter keyboard (for the user to communicate to it) and a television-like screen (for it to communicate to the user).

For household applications, other devices are desirable – a printer for making paper copies of computer output, data storage cassette tapes or disks, and linkage to a telephone so the computer can be used as a *terminal* to communicate with other computers. *Hardware* refers to the equipment and *software* to the instructions or programs that tell the hardware how to perform.

Another useful term for the computer glossary is *micro-processor* – it is the brain of the microcomputer. These also exist as tiny, special-purpose computers that now are being installed in appliances and automobiles. Most people are using these computers already and don't realize it.

What functions can the computer perform for the family?

Household applications can be categorized into several areas – entertainment and education, record keeping and calculating, communications and information, and electronic monitoring and control.

Entertainment and education.

For computer hobbyists, the hardware itself is fun and educational. For most people, commercial software will be the source of entertainment and education. It's entirely possible, as with television, that a given program can do both. Even the most modest personal computer can do these functions.

For children, mathematics, language,

and even some aspects of art and music, can be fun with a computer as a tutor. Since most microcomputers have keyboards like typewriters, learning to type on a computer is easy with instant feedback on accuracy and speed. Computer-assisted instruction will help you learn a foreign language.

Record keeping and calculating.

The computer has the ability to store huge quantities of information and manipulate it with incredible speed. (It is similar in this respect to the human brain, but with even better accuracy.) This speed and accuracy is of obvious advantage in a business or institution. It can offer something in the home as well.

Financial records are the most likely application; grocery inventory and menu planning can be another. Because any material made up of words or numbers can be stored and readily accessed, computers can be used as word processors or calculators. Word processors edit and reproduce written messages and calculators manipulate numbers according to programmed instructions. For the record-keeping and word-processing functions, devices such as a printer and data storage are required components.

Communication and information. For this application, the computer should be considered an extension of the telephone. In fact, there may not be a computer in the home at all but the equivalent of the telephone with a monitor for displaying information and perhaps a printer for making paper copies of it. The "computer" exists in a distant operation where the information is stored. This terminal operation could allow the household to access current information from the stock market, the weather bureau, the bank, retail stores, and news services.

Electronic monitoring and control. The computer has already earned its place in the home for this purpose. The common household thermostat is an analog computer that can be programmed to monitor and control household temperature. The timers that turn lights on and off are programmable control units. Ranges and microwave ovens have microprocessors to control the timing and temperature for cooking. These may seem like simple applications

but they are sensible uses for electronic technology, can be acquired at modest cost, and require very little learning for the user. It should be emphasized that the microcomputers marketed today for household use do not offer these benefits.

Who benefits?

The computer's contribution to an efficient business operation gives a clue to household use. Where there is a home business operation, the efficiencies of computerized record keeping for inventory control, payroll, names and addresses of suppliers and customers, checking-account records and other business-related functions may also be used in the home. The family farm operation is a natural situation for a microcomputer to assist in managing the farm operation and providing benefits to the home and family as well. A real estate or insurance salesperson operating out of the home is another likely candidate for a satisfied computer owner who can combine home and business use.

Even a small home business operation may benefit from a microcomputer. For example, a day-care owner may find it useful in keeping records of children enrolled, receipt of payments from parents, and an inventory of food and other supplies. Announcements to parents could be produced with a word processor that allows for individual messages within a form letter.

A crafts production and marketing business operating out of a home might maintain a mailing list of customers and suppliers and an inventory. A family member who works as a volunteer can maintain mailing lists or bookkeeping for non-profit organizations. And, of course, there is the possibility that the computer itself becomes the home business – clerical and bookkeeping services performed with a microcomputer may find a ready market in the community.

A writer from *Personal Computing* said, "At this tender stage in the home information revolution, many of the most convinced and enthusiastic users

are people who get double duty from their computer systems – benefits related to their jobs as well as practical concerns of the family.”¹

Those who delight in keeping neat records for household management will enjoy the computer's unlimited storage and instantaneous search-and-find capacity. Financial records, recipes, pantry and freezer inventories, Christmas mailing lists, and other files, once entered, can be maintained and accessed with speed and accuracy. For example, if a homemaker is willing to enter recipes into the computer's storage system, the machine can instantaneously find the “biscuit recipe from Marge,” or the “appetizer recipe that uses salmon.” This does save time compared to searching a card file or several cookbooks. Also, the recipe can be printed for use in the kitchen and the copy discarded after use – no messy cards with chocolate fingerprints. Finally, the computer can do the calculations necessary to change the quantities of ingredients if a larger or smaller number of servings is needed.

Other attributes that contribute to the appeal of the computer are that it is very quiet (except for the printer and some games) so can be used without disturbing others. There is none of the vibration found in typewriters and there is less of the clutter typical of processes that use paper rather than electronic storage. One's work can be put away with the touch of a button.

Individuals can assess their own traits as a guide to their potential for being a satisfied computer user. Persons who have good finger dexterity, such as good typists and pianists, will be more efficient users. One need not use mathematical skills to use a computer, but a person who is comfortable with the logic of mathematics will find computers easy to use.

For a family seeking a new indoor leisure pursuit, the microcomputers available for household use provide appealing hobbies for children and adults. Some persons are intrigued with the electronic equipment (hardware); others are absorbed with programming (software). Some of these efforts can result in custom-designed applications for the family, yielding a benefit from a leisure-

time pursuit. It is important that at least one member of the family finds the technology appealing, and is willing to devote leisure time to making the most of its potential.

Most children find the computer appealing, at least for a time, and are less intimidated than adults. A child will find it an enjoyable companion offering learning opportunities that are not limited by a teacher's or parent's time constraints. Perhaps children with learning problems may find it a helpful tutor if they are motivated to work alone. A machine can offer words of positive reinforcement, but does not embarrass the child when a mistake is made.

These are the potential benefits waiting for the computer purchaser. But is this assurance that benefits will be great enough to justify the purchase? The answer depends on the particular household circumstances, the charac-

Most children find the computer appealing. Children with learning problems may find it a helpful tutor. A machine can offer words of positive reinforcement, but does not embarrass the child when a mistake is made.

teristics of the potential users, the attributes of the product itself, and of course, the value of alternative uses for the money required to purchase a household computer system.

The computer will make demands on time, money, and space. Any benefits must be viewed in light of these demands.

Will it save time?

Time is the scarce resource in many households. New equipment is expected to perform household tasks and free time for more enjoyable activities. If a family has a business operation that can use computerized record keeping, there will likely be a net savings in time. But for the typical household, it is difficult to imagine any net savings because of the time required to learn to use the equipment and the programs.

So, benefits will have to be compared to the time it takes to use the computer. Is the improvement in family records worth the time required to enter the family's expenditures into the machine? Is the grocery list prepared by the computer an improvement over one prepared by pencil, if you have to keep the machine updated on items purchased and used?

One person reports “a marginal benefit in time saving – entering data in the computer versus organizing on paper – but a ‘phenomenal’ improvement in getting usable information from raw data, and manipulating it in ways that weren't possible before.”²

The ideal household computer system should be fed daily information about financial transactions, menus and dietary intake, appointments on the family calendar, and all other data required for the machine to reach its full potential as a household resource. It is understandable if this system comes to be more of a demand than a resource.

The entertainment and educational potentials of electronic technology offer a new leisure pursuit. But, there is little assurance that the machine will free time for other leisure pursuits beyond playing with the computer. Maximum benefits can be attained only by people who are willing to devote time to learning to use a variety of hardware devices and software packages.

The financial demands

The cost for a home computer can vary according to the sophistication in equipment and diversity in programs. The consumer will find this purchase a complex one because of the jargon used by computer manufacturers and programmers. Modest systems are appealing in price (less than \$1,000) but may be nothing more than game-playing machines that become inadequate as the family's needs and interests expand. Some “beginner” packages lack a monitor (the family television is used instead) and a printer (no permanent record can be produced on paper). On the other hand, the more sophisticated packages may be so costly (\$4,000 or more) that the family cannot possibly

feel satisfied with the return for their investment.

The demands for money do not end with the initial equipment purchase. The buyer should anticipate other expenses at the time of purchase and some ongoing expenditures as well. Expenses for electricity are small. But, if the computer is used as a terminal with telephone linkage, an extension phone or even another line for long-distance, telephone charges will be significant (\$25 to \$75 a month). Special interest magazines for computer users abound and are attractive sources of the latest information on hardware and software. If you don't read them at the library, subscriptions must be added to the ongoing expenditures. Classes in microcomputer programming are helpful to many new users—they may be found at community colleges, in adult education programs, or from computer dealers, but are rarely free.

What are the space requirements?

A familiar question will be "Where do we find room for it?" For computer game-playing, a place that can fit a card table is all that is needed. For more diverse uses, additional space may be necessary for extra equipment (printer and data storage devices) and for storage of instructional manuals, data storage disks, printer output and paper supplies.

It is conceivable that having a computer perform the functions of entertainment and household record keeping may reduce the demands on space. The equivalent of many boxes of board games, puzzles, and other toys can be stored on magnetic disks in a box smaller than a book. Also, large amounts of household financial information or the equivalent of many recipe books can be stored on a single data disk. This can save space if the computer truly substitutes for the other games and toys, and for the file folders, canceled check boxes, and recipe cards.

course, electronic storage is no substitute for valuable papers such as receipts for tax purposes and insurance policies.

The other space-related question is "Where is the best location in the house?" A central location will provide convenient access for regular input of the family record-keeping data. If the machine is to be used for menu planning, it should be near the kitchen. If it's used for family financial records, it should be near the desk used for bill-paying. If it's used for the family appointment calendar, it should be near the telephone. For educational pursuits, it should be in a quiet area and for games it is best in a recreation area. The computer that needs to be connected to the television or telephone must be placed near them.

You can move the machine from room to room as needed, but such a practice is questionable with such ex-

Concentration is required for many activities, and even with many games, one child has to watch while another plays. It is inherent in the machine that your face must be turned to the computer, not to another person.

pensive equipment. The inclination to record expenditures and grocery purchases may not be strong enough to survive moving equipment from game room to the den.

Other attributes of the physical environment for the computer need attention. The microcomputers do not need any special house wiring, but the complete configuration of devices (processor, monitor, printer, etc.) may need several electrical outlets. The producers of multi-outlet strips with built-in off-on switch and overload protector are going to find a ready market among home computer owners. Another environmental concern is static electricity. Anti-static insulators may have to be placed on the surrounding floor area or in the equipment itself. Interference from radio and television signals is a problem for users in some locations.

Lighting is an important consideration if the equipment is used in conjunction with printed material. The computer monitor is easiest to read in not-so-bright lighting, but printed copy needs strong

lighting in an otherwise dimly-lighted room. Finally, if the machine is used for long periods a good, adjustable office chair is advised to reduce fatigue.

What will be the impact of this new technology on the mental and physical health of family members?

The impact of technology on humans is now readily acknowledged. It is only reasonable to expect that the introduction of a computer into the home will be noticed, in unfavorable as well as favorable ways. Living space and household expenses are not the only domains likely to be affected; leisure time and family relationships may also be influenced by the home computer.

The home computer is another resource that must be shared. This may not be easy for American families no longer accustomed to sharing their bathrooms, telephones, or televisions. The dilemma arises when the machine is enjoyed and used by several family members. There may be conflict in deciding whose turn is next. If it is not in demand, then is it paying its way?

The new household computer can be captivating for children and adults. Some parents may be delighted that children who were restless and purposeless with their time before a computer was purchased are now spending constructive hours absorbed with educational games. In other situations, the computer will absorb time in game-playing that would have been spent in household tasks, school assignments, or piano practice.

Although promotional material for home computers often show Dad, Mom, and a couple of interested children enjoying an educational game, it's more likely to be an individual endeavor. Concentration is required for many activities, and even with many games, one child has to watch while another plays. These activities are more likely to lead to isolation of the family member, rather than to interaction. It is inherent in the machine that your face must be turned to the computer, not to another person. On the other hand, the microcomputer may provide the oppor-

tunity for family members of all ages to share in the general experience, if not in most activities. It is possible that a youngster may become the best programmer in the house and have much to teach Mom and Dad about the machine. This shared learning provides a needed balance in a world where adults have so much to explain to kids.

In using a microcomputer, one "talks" with the fingers, and "hears" with the eyes; such activity may stifle the development of a well-balanced personality. There is reason to question the substitution of electronics for parent-child interaction in the process of learning multiplication tables or in playing a game of chess. Certainly a lot is lost in the translation. Martin Ringle of Vassar College notes that "(computers) may turn out to be more patient, more compassionate, more intelligent, and more trustworthy than the human beings in the child's world. They also eliminate the need for imagination." He also questions "what emotional ties will children have to their computers and to machines in general? And what about the child's relationships with other children? Will it be preferred to human companionship? (There is already mounting evidence that some 'hobbyists' prefer the company of their console to that of other human beings.)"³

In anticipating the effect on children, the similarity in some respects between computer use and television viewing must be recognized. Much of the concern over children's addiction to television has been in respect to the lack of social interaction with parents and other children, and the restrictions on vision and posture imposed by watching a "tube." These concerns are just as relevant for addiction to computer games. While it is true that television and the microcomputer can bring much of the world into the family room, to what extent should we experience the world through looking at a television or computer monitor?

Do we need one at all?

It has been noted that "many people know that they want or need a computer, but they are not sure why."⁴ This

attitude is not what is expected of a rational informed consumer. Recognizing that the computer is an expensive substitute for many familiar processes, both manual and electronic, helps to understand its potential and to assess the benefits it offers relative to its cost.

Household financial records and Christmas card mailing lists can be kept with pencil and paper by those inclined to keep records — electronic storage is faster and neater, but not significantly different in function. The director of one software company acknowledges that "most people's budgeting can be handled adequately by a folder with 16 envelopes in it."⁵

Arithmetic calculation is the computer's forte, so it is an apt substitute for a hand-held calculator, but an expensive and rather inconvenient one, compared to today's checkbook-sized models. A computer, however, has advantages over a calculator because it can be programmed to prompt the user for

The optimum situation would be where there is some business operating out of the home. The machine can then pay its way in the business operation and other functions are a bonus.

the appropriate entry, to edit for errors, and to present answers with word clues as well as numbers.

Electronic and video games for entertainment and education are available in small, special purpose devices that may lack the sophistication of the personal computer variety, but have the convenience of portability (for example, entertaining children in the automobile) and do not require a sizeable expenditure. Needless to say, children can also be taught and entertained with non-electronic devices. Flash cards for multiplication tables and a checkers set have done the job for generations and one might ask if the computer can really substitute for the interaction with the teacher or opponent or even for the aesthetic experience of handling dominos or chesspieces.

The informed consumer will recognize that not all of the wonders

touted as potential benefits of the electronic revolution are available in the "computers" sold at the neighborhood shopping center. The microcomputers marketed for personal and household use do not have built-in capacity for electronic monitoring and control of household appliances. These applications must be custom-made or purchased as separate devices. Advances in communication and information, another promise of the electronic revolution, will likely be realized through improvements in telephone and cable television rather than through the household or personal computer as now marketed.

The optimum situation for a satisfied household computer user would likely be one where there is some business (or similar venture such as a non-profit organization) operating out of the home and the individual involved is comfortable with using electronic technology in the process. The machine can then pay its way in the business operation and other functions that benefit the family members (entertainment, education, household record keeping) are a bonus.

What's available in the household computer market?

The computer shopper will see machines with typewriter-like keyboards which provide the user with a means to communicate to the computer. Some keyboards have "number pads" with numeric keys arranged like a ten-key calculator for added convenience in entering numbers. Some keyboards have no mechanical action at all but are activated with only the lightest of touch. The computer itself (the brain called the processor) is attached to the keyboard. The next component in the computer system is a screen display for the computer to communicate to the user. The screen may be any ordinary television (color or black and white) or a monitor specifically designed to offer greater clarity for computer displays.

These three components constitute a computer but do not offer much convenience. The next obvious component to add to the system is a storage device

to store and read information and programs (instructions) into the computer when needed. Obviously, you would not want to enter everything on the keyboard. The storage device might be an ordinary cassette tape recorder or a more sophisticated disk storage. Disks are like phonograph records; they are faster to read than tape and less susceptible to error. The disks are inserted in disk drives for reading and writing. One drive is sufficient for most purposes, but two drives make it easier to copy data or to use a program in one drive and data in another.

A printer is the next component that a computer buyer is apt to be eyeing. Without a printer, the output from the computer is only on the screen and nothing is permanent. With a printer, "hard copy" is produced on paper. The printer is likely to be the most difficult purchase decision of all the hardware

components — quality and prices vary widely, maintenance and repair create more problems with printers than any other device because they have more mechanical parts, and printer technology is undergoing rapid change at this time.

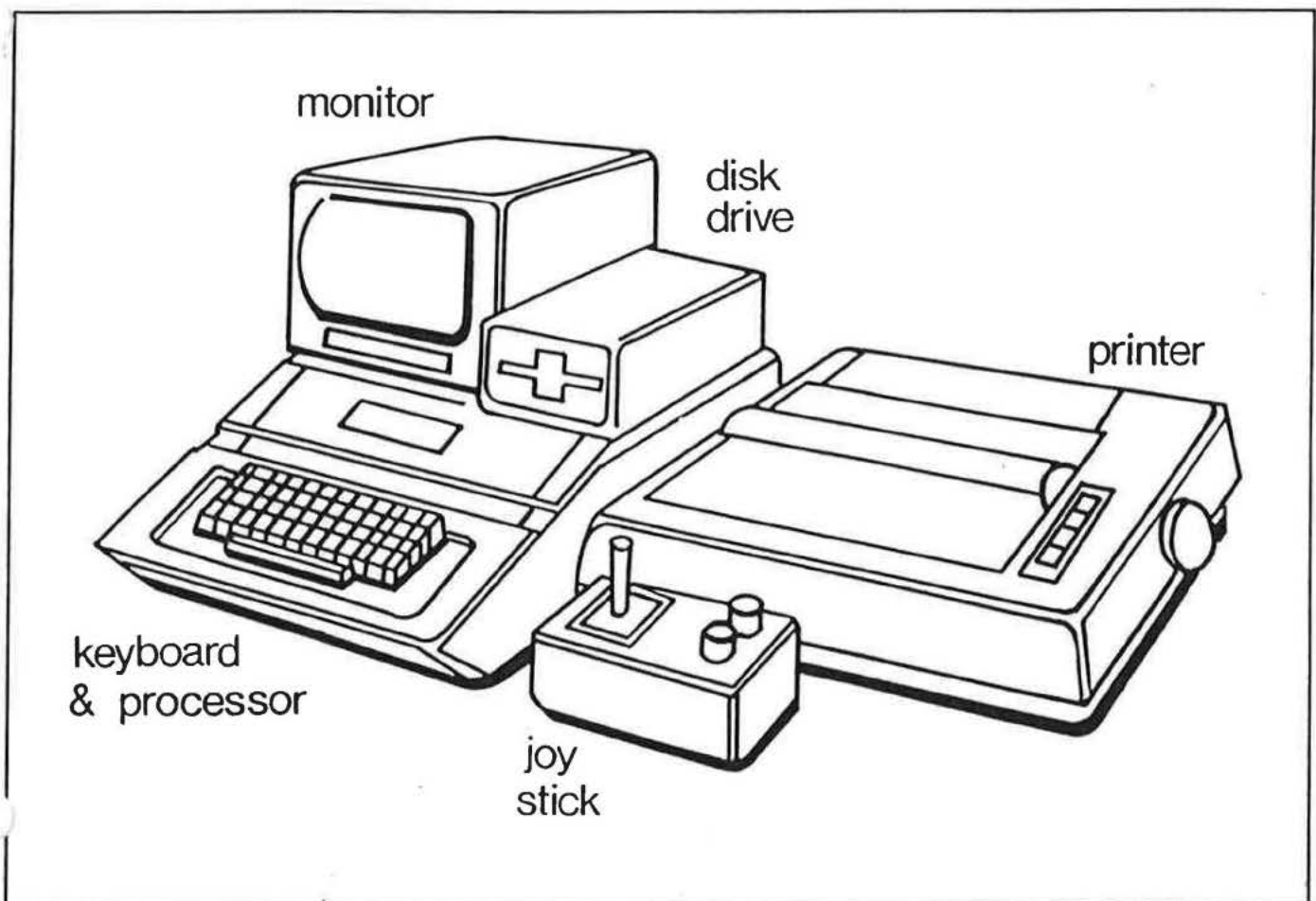
For the not-so-serious user, other devices will add to the enjoyment. Game-playing requires "paddles" for ping-pong type games and a "joy stick" for directing missiles around the screen and firing on the enemy.

Manufacturers of personal computers are aggressive in promotion techniques. Packages of equipment and programs are offered at discount prices. It should not be surprising that the items most likely to be needed may be left out of the special package. For example, the current "family starter package" of a best-selling manufacturer offers a wide range of programs that will certainly enhance

the beginning user's enjoyment, but does not include a monitor (the family television set must be used) or a printer (no paper copy of the computer output can be made). The purchaser who likes his computer will soon be back to the store to add these two desirable devices to his system, adding at least another \$1,000 to the initial cost of \$2,500.

On the other hand, the consumer who carries home nothing but hardware from his initial purchase may be baffled at how to make this expensive equipment perform. The software (programs and manuals) are an essential, and costly, part of the investment for all users except the hobbyist who intends to custom-program the machine.

Attractively priced models (as low as \$300) are widely advertised, but such machines, although worthy of the name computers, are likely to be merely entertainment devices. Models that hook up



to the home television set are appealing in price, but force a choice at any moment between viewing television and using the computer, something no family with children needs. A system that offers potential for keeping household records demands more equipment than these game-playing machines provide. It should have data storage devices, a printer to provide hard copy records, and a monitor of its own rather than only a link to the television set. Now the cost becomes two or three times that of the "stripped-down" model.

Access to information networks or to financial institutions for electronic banking requires a telephone hookup which adds \$200 or more, and ties up the home telephone when in use, perhaps calling for the installation of a second telephone. Telephone line charges and hookups to information services cost \$25 to \$75 a month.⁶

The total cost is not only the initial investment in hardware, it includes the software and supplies required for the system to deliver on its promises. To use all the potential in a household computer system, you may need to spend \$4,000 to \$5,000. At that level of investment the only limitation will be the user, not the hardware or software. Sylvia Porter agrees that a complete household computer system cannot be obtained for less than \$4,000.⁷

The variety of hardware available makes the selection process a challenging one, but there are even more comparisons to make among the multitude of software packages marketed. The serious home computer user would be advised to resist the temptation to buy a variety of special-purpose programs for household use. Most household applications can be developed on three general-purpose software packages: a word processor (cost \$75 to \$150); a filing system (\$75 to \$150); and a widely used calculation package, VISICALC. This latter program costs \$150, and has wide application to any numeric record keeping and calculation purpose – it is the best selling microcomputer software package. For this total expenditure of less than \$500, a computer owner can develop individualized household applications without learning a programming language. However, programs for

entertainment and education would require additional expenditures for software.

How much care must be exercised in handling and using the equipment?

A natural question from the prospective buyer relates to the use and care of the computer. Certainly, warranty coverage and dealer service are matters of significance for such a costly purchase. The established products have generally survived the rest of household use although failures of individual components are possible.

Certainly one of the matters that deserves close attention in the owner's manual before purchase is how much care must be taken with the hardware, particularly if children will be among the users. Although the uninitiated are often afraid of ruining something if they press the wrong button at the keyboard, this need not be of concern. A matter of greater concern is the use and care of software, the manuals and diskettes or cassette tapes. The diskettes must be kept away from dust, heat, and

The home computer user would be advised to resist the temptation to buy a variety of special-purpose programs for household use. Most household applications can be developed on three general-purpose software packages: a word processor, a filing system, and a calculation package.

magnetic fields. Children will find their computer games must be treated more carefully than board games. A single one of these packages may cost close to or over \$100, and yet have no backup copy of the program tape or disk. In order to protect the manufacturer, these programs are packaged in such a way that they cannot be copied. Therefore, if a disk is damaged or lost, a replacement at full cost (or in some instances a backup at reduced, but far from minimal cost) must be purchased.

For example, the best-selling VISICALC software package costs \$150 and has no backup program disk; a backup can be requested for \$65.

If many individuals are using the machine, each must take care to not destroy another's work. A cartoon in a recent *Wall St. Journal* depicts a father demanding to know "Who erased my investment portfolio with Space Invaders?" It is possible that a year of family financial records could be accidentally erased, unless all such data is kept in duplicate on backup disks.

Concern over home security should influence the consumer who is considering the purchase of a piece of equipment costing several thousand dollars that is so easily removed from the premises and so easily disposed of on the underground market. A new owner would be well advised to avoid publicity of his status as a household computer user. Similarly, the local clubs of computer users should not allow their membership lists to be distributed. Little thought has been given by manufacturers to protecting the devices from theft. The main processing units might be bolted to a table, but it is more difficult to permanently attach the peripheral devices.

What questions should I ask when I shop?

You should have no trouble finding someone to sell you a microcomputer. Electronics stores that specialize in car stereos are now devoting space to microcomputer equipment. But, unfortunately, not all stores devote any time and money to training their sales staff.

A software consultant, Abby Gelles, says, "Most retailers have never before sold anything even remotely resembling a computer and are unable to respond to the simplest inquiries. Insufficient dealer education remains a strong sales obstacle today. Hobbyists are still the only customers prepared to walk into a store and buy a micro off the shelf."⁸

Be sure the seller is able and willing to help you get the system going when you have trouble. Ask specifically about repair procedures for each com-

ponent. Does equipment have to be sent away? Is a replacement available while it is gone? Is there a flat charge for diagnostic services? (One major brand printer demands a \$100 fee for even the most minor repair work.) Service contracts are available, for which you are likely to pay 10% of the price of your system annually. "If you anticipate \$800 worth of repairs every year on your \$8,000 microcomputer system, maybe you're buying the wrong system."⁹

It is perfectly appropriate to ask for plenty of time for "test-driving" the computer in the store. Be particularly sensitive to comfort in seeing the screen display. Think in terms of hours of uninterrupted use — will you be comfortable at the keyboard? Have in mind certain specific tasks for the computer to do for you and ask the seller to select appropriate software for those tasks. Then ask to have it demonstrated and try to operate the system yourself. You cannot select a good household record keeping system by playing a few games with a joy stick or paddles.

When purchasing software, it seems reasonable to ask to see a program demonstrated. Software is generally packaged tightly in plastic wrap to discourage in-store testing and assure the purchaser of an unspoiled program. However, a service-oriented store will make demonstration packages available for testing. A store that does not allow customers to test software would seem to be overly concerned with minimizing costs at the expense of customer service.

Is now the best time to buy?

Despite predictions of mass market penetration for household computers, sales for home use have lagged, a failure attributed to absence of software for household applications. It has been said that some computer producers committed a blunder comparable to selling

stereos without a record industry.¹⁰ Until very recently, the market was primarily one for hobbyists, those users who delight in the electronic circuitry and who consider failure in hardware or software an engaging challenge. The pragmatic user who wants "bang for his bucks" perceives the same failure as an annoying frustration. Recent improvements have made the product, the hardware, and particularly the manuals and programs accompanying it, more "friendly" to the users who want IT to work for them, not vice versa, but it hardly seems to have developed to the level of the mass market.

A typical response from the consumer is that the price of these machines will fall precipitously in the near future, so it is best to wait. Certainly, there is reason to expect downward pressure on prices for electronic products unlike the pattern for most other consumer goods of recent years. Some years from now these systems will be available at lower real costs than are found today. However, the more successful of the personal computer manufacturers will take advantage of their market advantage and tend to maintain firm prices. The "soft" prices will be found among the less successful competitors and a purchase of a lesser-known brand is hazardous. And the consumer who waits forfeits the use of the machine in the meantime. At least one expert predicts that "You're going to see increased capability for the money rather than decreased prices."¹¹

That leads to the question, "Will the machine I buy today be obsolete tomorrow?" New and improved models will be available but with respect to functional obsolescence, "A microcomputer that will do a job well today will still do it well tomorrow. And by tomorrow, today's users will have found a dozen new applications for it."¹²

Prospective purchasers would be advised to observe the market (read

microcomputer magazines, join a computer club and visit computer stores) to determine when the product has developed to the point where it is "friendly" enough for them to use (for some people, that time is now; for others, more development must take place) and the price is right for them. For the optimum household situations with business operations, returns will be realized even at today's prices. For the ordinary household, that day has probably not arrived.

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By Sandra A. Helmick, Associate Professor of Family Economics, Extension Division, College of Home Economics, University of Missouri — Columbia. Issued by Washington State University Cooperative Extension, J. O. Young, Director, and the U.S. Department of Agriculture in furtherance of the Acts of May 8 and June 30, 1914. Cooperative Extension programs and policies are consistent with federal and state laws and regulations on nondiscrimination regarding race, color, religion, national origin, sex, age, or handicap. Published April 1983. 25c

SEVEN QUESTIONS TO ASK YOURSELF...if considering a purchase

1. What specific tasks could a personal computer do for me?
2. Would the personal computer make the tasks any easier?
3. Is the software available to do these tasks?
4. Are the benefits of using the personal computer worth the cost of the necessary software and hardware?
5. Am I willing to invest the time along with the money in learning how to operate the software and the hardware?
6. Is my temperament compatible with what it takes to use a personal computer?
7. Do I find innovation enjoyable?

THINK ABOUT HOW YOU ANSWERED THE QUESTIONS.

SEVEN QUESTIONS TO ASK YOURSELF...if selecting a personal computer

1. Does the personal computer and its operating system come with manuals I can read and understand?
2. Can I select peripheral equipment that will meet my needs and also be compatible with the personal computer?
3. Can the personal computer expand if my needs expand and how much cost is involved?
4. Do I have any special needs - portability, fast retrieval of large amounts of information, special printing of graphics, upper and lower case letters - that I need to consider?
5. Where will I put the personal computer in the home?
6. Is there local service and assistance available?
7. What type of personal computers are being used at my office, at my children's school and at my friend's house?

REVIEW A SUFFICIENT NUMBER OF PUBLICATIONS AND EXPLORE VARIOUS MARKETPLACE OPTIONS UNTIL YOU FEEL COMFORTABLE WITH YOUR DECISIONS.



How To Shop for a Home Computer

United States Department of Agriculture • Extension Service • Home Economics and Human Nutrition

Purchasing a home computer can be a trying experience. The tremendous variety of models and prices, the unfamiliar jargon used to describe microcomputers, and the shrill hype of the advertisements can discourage even the most savvy shopper.

This fact sheet can help you plan your purchase. It suggests questions you can ask yourself before you buy a personal computer, and it offers some pointers on evaluating computer dealers.

How Much Should You Know About Microcomputers Before You Buy?

You should have at least a partial understanding of microcomputer technology before you invest in a personal computer system. These powerful tools are designed to be used in highly individual ways. The more you know about how they work and what they can do, the easier it will be to match a system to your needs.

Familiarize yourself with the inevitable jargon. Awareness of RAM and ROM, bits and bytes, floppy disks and ports will help you as you compare different brands of computers and evaluate the unique features of each. If you wish to buy accessories such as a printer or telephone modem, you should learn the strengths and weaknesses of particular devices and know how well they work with specific computers.

Consider your own requirements carefully. A computer's features may appear neither obvious nor important to you as a prospective buyer. Yet an inappropriate machine could present unexpected limitations after the sale. The memory space might not be sufficiently expandable; the keyboard or the display might be inadequate; the software you want might not be available for that computer.

A wealth of information about microcomputers is now readily available. Trade magazines and books feature descriptions of typical home computers and tips on how to buy and use them effectively. Computer user groups, adult education and community college courses, and acquaintances who own computers are excellent resources.

What Do You Plan To Do With Your Computer?

Before you decide on the hardware, identify your needs and those of all potential users in your family. Typical home computer applications include word processing, arcade-type games, educational programs, data base management, financial recordkeeping, and telecommunications.

To help you determine which models you should consider, try to project what you will do with your computer in a year's time. If you expect to play video games, for example, you will need a computer with color graphic capabilities. If word processing is your need, then high-quality text display is important. In general, evaluate capabilities rather than specific machines.

How Much Do You Wish To Spend for the Computer?

Balance your needs against your budget. Microcomputer prices range from under \$100 to over \$5,000. Machines under \$300 have limited capabilities, but may be suitable as starter computers. More powerful systems with extra software and a disk drive or printer will cost from \$1,000 to \$4,500. System prices vary greatly from computer to computer. There is no "best machine" for everyone.

What Other Expenses Are There?

You will need to budget for software in addition to the cost of the basic hardware. It can be expensive. Word processors can cost as much as \$500—data base programs up to \$700. Bargains are available to the careful shopper. Some computers come equipped with "bundled" software at no extra cost. Dealers sometimes include extra software when you buy a computer system. User groups and magazines can be a source of inexpensive programs that can perform many common functions. Investigate all available resources before you buy.

Anticipate additional expenses that accompany a home computer purchase. You will need blank storage disks or cassette tapes and a small TV set or video monitor. A desk, chair, and lamp are also part of the typical home computer workspace. Budget for a magazine subscription, a few books, and a class or two to help you get started. Set aside some money for such last-minute surprises as a printer cable or power filter. And be sure to budget some time to become familiar with your computer and to learn how to use it effectively.

What Other Factors May Influence Your Purchase?

Besides the availability of particular software, other factors may determine which computer is best for you. These include estimated data storage requirements, planned future enhancements such as additional memory, suitability of a particular computer dealer, and available financing.

Compatibility with other systems is important to many computer users. If you have a hobbyist friend or business associate who already owns a computer, there are advantages to owning a similar machine. You can share information, swap data files, and help each other use your machines to best advantage.

What Kind of Computer Dealer Should You Select?

Shopping for a machine is only part of the process. Most people need a dealer who can support them both before and after the sale. More important than the specific hardware and software you choose is the specialist who can set up a working system for you. That person will help you specify the components and choose the software. He or she will also guarantee the computer and service it, if necessary.

The number of dealers entering the computer market continues to increase as the price of computer hardware drops. Presently there are some 2,500 retail computer stores coast to coast. In addition, department stores, appliance outlets, catalog stores, and even toy shops and drug stores now sell computers.

Mass merchandisers may sell popular computers at attractive prices, but generally can provide little or no in-depth expertise. Office equipment dealers who stock computers understand payroll and accounting software, but may lack the skill to tailor a home computer system to your unique personal applications. Mail order houses have low prices, but often offer no service after the sale.

A local retail microcomputer dealer who specializes in such machines and stocks several brands is probably your best bet. That dealer can provide not only expertise but also repair facilities, software support, training, and a wide selection of books and accessories. A dealer who understands your preferences can be invaluable in helping you select hardware and software that meet your needs.

Generally microcomputer dealers charge the retail price for computer systems or offer only a modest discount, so their prices may be higher than those of their "discount" competitors. However, after the sale, when you have further questions or technical problems, you will have the added benefit of an area merchant who provides the solutions and repair service you require.

Which Store Should Be Your Dealer?

On your first visit to a local computer store talk with the store manager and ask which salesperson can best serve you. Evaluate the store itself as well as the equipment it sells. Here are some suggested questions to ask your salesperson:

- How long has the store been in business?
- What services does it offer?
- Does the store carry software as well as hardware?
- How extensive is the product line?
- Does the staff have special expertise in a particular area (home use, small business, games, etc.)?
- Are training sessions available? How expensive, how extensive, and how frequent are they?
- Have other customers been satisfied with sales and service?
- What is the dealer's reputation with members of local computer user groups?

The salesperson's responses will give you a measure of his or her expertise and ability to help you choose a system. Ask the salesperson to let you work with one of the computers—alone. Ask for a suitable program (perhaps a word processor or typing tutor) that can demonstrate the machine's capabilities. Smart computer store operators realize part of their job is educating the public and letting them try out the equipment.

How Will the Dealer Support the System After the Sale?

The more you know about the dealer's policies, the easier it will be to make your buying decisions. Before you buy, obtain answers to the following questions:

- Does the store have a repair facility? If not, who can service your computer?
- What is the policy on repairs?
- How long do repairs generally take?
- Does the shop generally repair circuit boards or swap them for new ones?
- Is a variety of replacement components available from stock?
- If not, where is the nearest supplier and how quickly will the parts arrive?
- Is a computer like yours available for loan while your system is in the shop?
- Will a technician make service calls at extra cost?
- How soon after purchase should you expect delivery?
- What are the payment terms?
- What kind of warranty does the computer manufacturer provide?
- Does the dealer offer an additional guarantee?
- Will the dealer bench-test your new machine before you take possession?
- What kinds of problems can you expect to have with your computer?
- Does the store buy back equipment or make trades? Under what circumstances?
- Will the dealer accept telephone inquiries from new users curious or confused about some aspect of their system?

How Will You Know When You Are Ready To Buy?

Once you have evaluated your needs and learned the major differences between popular computers, you are well on your way to making an intelligent choice. If you have drawn up a budget that includes hardware, software, supplies, and education; if you have found a reliable computer dealer and established a relationship; and if you feel comfortable with the idea of buying a personal computer—then it's time to invest in a personal computer system.

Armed with a basic understanding of microcomputers, a knowledge of your own requirements, and a dealer who can help you after the sale, you will be well prepared to start using this powerful personal appliance.

For more information on home computers, contact your local Cooperative Extension Service.

EVALUATION FORM

Evaluation Form

RATE YOURSELF - Mark an X on each line to indicate your:

1. Knowledge of personal computer uses in the home.

None or little-----Increasing-----Great

a) Before class 0 1 2 3 4 5 6 7 8 9 10

b) After class 0 1 2 3 4 5 6 7 8 9 10

2. Knowledge of terms used to describe basic components of a personal computer.

a) Before class 0 1 2 3 4 5 6 7 8 9 10

b) After class 0 1 2 3 4 5 6 7 8 9 10

3. Awareness of where to find additional information to learn more about personal computers.

a) Before class 0 1 2 3 4 5 6 7 8 9 10

b) After class 0 2 3 3 4 5 6 7 8 9 10

4. Ability to analyze your needs and uses for a personal computer.

a) Before class 0 1 2 3 4 5 6 7 8 9 10

b) After class 0 1 2 3 4 5 6 7 8 9 10

-OVER-

5. Motivation to teach others about personal computers.

- a) Before class 0 1 2 3 4 5 6 7 8 9 10
 b) After class 0 1 2 3 4 5 6 7 8 9 10

RATE THE CLASS - Circle any that apply:

- | | | | | | |
|---------------------|------|------|------|--------|-----------|
| 1. <u>Teacher</u> | Poor | Fair | Good | Better | Excellent |
| 2. <u>Content</u> | Poor | Fair | Good | Better | Excellent |
| 3. <u>Materials</u> | Poor | Fair | Good | Better | Excellent |
4. What additional help or materials do you feel you need to present the lesson? _____

5. What key ideas will you emphasize when teaching the lesson? _____

6. Other comments or suggestions? _____

VIDEOCASSETTE TAPE

PERSONAL COMPUTERS
...AT HOME

VIDEO

PERSONAL COMPUTERS...AT HOME

(music and background shots)

Moderator-Cora Vowell

1960-Silicon Chip

1975-Computer Kit
1977-Preassembled Unit

AUDIO

INTRODUCTION

In 1983, about 6 million microcomputers were sold. Whether you call them microcomputers or personal computers, you are talking about a machine that is coming into the home scene.

Hello, I'm Cora Vowell, Yakima County Extension Agent and today we are going to be talking about personal computers.

In 1960, the silicon chip revolutionized the computer industry. Its small size allowed computers to become a lot smaller and it also made them a lot more reliable.

Computers are still a relatively new consumer product. In 1975, they were available in kit form where you put them together and in 1977 they became available in the preassembled form we know of today.

MEETING PERSONAL COMPUTER OWNERS

Today we are going to be meeting three personal computer owners and finding out how they got into personal computing.

Family 1 - husband, wife and three teenage boys

I have a husband who is an architectural draftsman. I have three teenage boys, and I'm a working mother. We have one college student. We decided to try one because our boys were getting to the age where they needed to work with them and our oldest boy had taken a computer class at school this year.

Family 2 - husband, wife and two teenage girls

I got into computing really quite accidentally. At the fair, I won a small Vic 20 and found out that I enjoyed it and liked it and moved on up to the Commodore 64.

Family 3 - husband, wife and two young children

Hi, my name is Mike and I want to tell you about my family, my computer, and some of the things I did before I got my computer. Also, what I use it for and what I enjoy about it and what I don't like about it.

I'm married. I have a two year old son and a four year old daughter. I got my computer about 15 months ago.

Prior to that I became interested in personal computers after reading an article in Newsweek. To find out about the computers, I talked to people that had computers. I subscribed to Popular Computing magazine and read that for about a year before I really got serious about buying a computer.

WHAT A PERSONAL COMPUTER CAN DO

Moderator

Now we are going to talk about what a personal computer can do.

Generally, it can take a large amount of information and organize it very fast, at about one-quarter the speed of light. But specifically, it really depends on the hardware that you have - the equipment, the software programs you have, and how much time you have to spend with it.

General Uses

There are 5 general areas, though, as far as computer uses for homes.

*home management

The first one is home management. And that is where you do things like budgeting, word processing, record keeping. In this use, you give the computer information and go on from there.

*education

The second one is education. In education, the computer acts as a tutor and goes at the speed that you can go.

*entertainment

The third one is entertainment and this is for both adults and youth. This is where it can be playing games or it can be learning how to use a computer.

*communication

And the fourth category is communication and information. In this one, you're using a telephone along with some subscription service to a particular company. You hook up your personal computer with a large mainframe computer or other computer owners.

*programming

And the last category is programming. Programming is where you give the computer instructions on how to operate.

We are going to be talking with some personal computer owners and finding out how they are using their personal computer.

Family 1

Actually, we haven't really started using the computer very much. We've just kind of let the boys do what they wanted to with it, getting acquainted with the programs and that type of thing, so far.

Family 2

One of reasons for buying the computer - ending up with the computer - was for the kids for school. It was a good excuse to get it. I found out that I use it more for my business, keeping records, budgeting, and keeping track of things.

Family 3

Most of what I use my personal computer for is home entertainment. Either for games or I like to work with the computer on filing or use Visicalc.

Moderator

A survey* of three thousand personal computer owners found that the number one use of personal computers was for entertainment followed closely by learning to program and word processing. Farther down the list was education and telecommunications and home accounting.

A Personal Computer Won't

WHAT A PERSONAL COMPUTER WON'T DO

A personal computer won't do everything for you.

- get you organized

Number one it can't get you organized if you are not organized in the first place. You are going to have to get your records together and get them organized and then go from there.

- make evaluations

Number two, it will compile information for you but is not going to evaluate it for you. You are going to have to look at the information and do the evaluation.

- always be right

Number three, if you put in inaccurate information, you are going to get inaccurate information back. So it is really important that you be careful when you enter the information. And also, sometimes there is a problem with the software or the hardware. But normally it is you putting in incorrect information.

- save money

And the fourth, is that it probably won't save you money. It costs something to purchase it and also it takes time to learn how to do it. In the long run it may end up saving you money, but you have to learn to use it as a tool and make it do the best things it can do for you.

COMPUTER TERMS

Computer Terms

The next thing that we are going to talk about are personal computer terms.

CPU is microprocessor

Microprocessor is a common term that you hear. A microprocessor is the brains of the computer. It also is called a CPU which stands for Central Processing Unit. It's housed in the keyboard, (usually).

And you may hear about 8 bit, 16 bit or 32 bit microprocessors. They are talking about the amount of information it can process at one time - 8 bits, 16 bits or 32 bits.

* Survey information found in Consumer Reports, September 1983.

BIT (smallest unit)
8 BITS = 1 BYTE*

What is a bit? A bit is the smallest amount of information a computer understands and when we talk about it we also talk about bytes. A byte is 8 bits of information.

Memory
(K is unit of measurement)

The memory is the amount of storage capacity that a personal computer has and that is measured in a unit called K. You'll hear this particular computer has 64K or this personal computer has 16K. They are talking about the memory storage. One K is equal to 1,024 bytes of information. Another way you can explain it a little better is to use this example. If you were typing a typed page, that would use about 2K of memory.

K = 1,024 bytes

These are just a few of the terms you might hear when people are talking about personal computers.

COMPUTER HARDWARE

Computer hardware terms may be unfamiliar to you. I would like to go over a few of them.

First, we have what we call input devices. This is the equipment used to enter information or commands into the computer. These are things like the keyboard, game joystick. There are light pens. Some of the new computers have what they call a mouse.

Keyboard - detachable,
function keys, numeric
pad

On this particular computer that we have, the only input device is the keyboard. This keyboard has some special features that are not always available on all keyboards. It is detachable. It has some function keys and it also has a numeric pad for numbers you can enter.

Output devices allow you to see what is being put into the computer and what you are doing. This may be a monitor and another term you may hear is CRT which stands for cathode ray tube. Also, the printer is an output device.

Monitor

You can get colored monitors, ones that have green screens and ones that have amber screens.

Printer

The printer allows you to get what we call the "hard copy". Copiers have dot matrix printers or they have letter quality printers. Another term you may hear when they are talking about printers is CPS - which is the characters per second that it prints. To put this in another way, if it types 20 characters per second then it types a double spaced page in about one minute.

*A group of bits -
usually eight - is
called a byte. A byte
can be used to represent
a character - letters,
numbers or symbols.

Disk and disk drive system

Storage devices on the computers keep information so that you can use it later on and you don't have to enter the information every time you use it. This is a cassette and tape recorder as one system. The disk and the disk drive is another system. This particular computer that we have here uses disks and two disk drives to operate it. We are going to look and see how the disk and the disk operating system work.

Loading a software program

What I'm doing is loading this projectory program which is coming off the disk drive right here. You can hear it "whirring" which means it's looking for the program and loading it in.

Modem

And the last particular piece of equipment that we have here on this computer is the modem. What it does is sends and receives information using the telephone line.

Computer owners have different hardware setups. We are going to be talking to Marilyn and to Jim and to Mike and letting them talk about what they originally purchased, some of the things that they purchased later on, and some of the things they are thinking about purchasing in the future.

Family 1

It is a Texas Instrument and we hooked it up to a little old \$10.00 t.v. set. We also have a recorder which is just a tape recorder.

Family 3

I bought this particular brand of computer, an Apple computer, after talking to different salesmen and reading every article I could on personal computers. Let me tell you about my computer as I bought it.

This is the monitor or green screen and right now I have it on because I have a program in it. I have the keyboard which I use to tell the computer what I want it to do.

When I bought this computer, the total package was around \$2,100.00. With it came a service contract, one disk drive - this over here. A disk drive is what I use to load the program into the computer. I bought one disk drive, as I said with it, and later I bought the second disk drive when I had enough money to do so.

Family 2

The modem for the Commodore and Vic generally retails for around \$60.00 now. It plugs into the back of the Commodore 64 and then the phone line if you have the jack type phones. This is what it looks like.

WHAT'S YOUR COMPUTER PROFILE?

WHAT'S YOUR COMPUTER
PROFILE?
575-4242

You've been observing three families. Do you think they have any characteristics in common?

If you want to find out what your computer profile is request What's Your Computer Profile from Cooperative Extension at 575-4242.

The research did find out that the average personal computer owner was married, over 35, lives in a city in the west or central part of the United States. Their income was higher than average. They owned their own home. They were price conscious and they liked innovation.

DECISIONS, DECISIONS

DECISIONS

If you are thinking about a purchase, there are four things you are going to have to consider.

Expectations and Uses

The first one is to figure out what your expectations and uses for the personal computer are going to be. Then you need to prioritize them. There are many options available on personal computers but usually they do one thing better than another.

Software Availability

The second one is become aware of the software that is available on the market. Also, find out how hard a particular software program is to use. The best way to do this is read reviews, ask personal computer owners if they have that particular program, and also try it out, if possible. Remember that even pros have a difficult time picking out software.

Hardware Availability

The third one, is the hardware availability. You are going to have to match your hardware to what your needs are.

Budget

And the fourth one is cost. The budget is always going to be a part of the personal computer decision. You are going to have to figure out how much you have to spend now and how much it is going to cost you in the future. There are a variety of personal computers available on the market and they range in price from under \$100.00 to well over \$5,000.00.

We are going to talk to our owners here and find out their system - how much it cost them to start out and how much it cost as they added on to the system. And also if they have any tips they want to share with us.

Family 1

Just for the keyboard it was \$49.00. We got it on a half price sale at one of the stores when they were going out of business. And we also got the recorder - cassette recorder - with it and it was on sale for half price also.

Family 2

Getting into computers can be relatively expensive to start with if you want to go out and buy a whole system all at the same time. I've found the best way to get into it is start slowly and work up to more pieces.

Generally, you can get into it - the Commodore 64 - today for about \$200.00. When I got into it, it was retailing for about \$500.00. So, the cost on a lot of these things has gone down.

Also if you shop around and look at different places, you'll find the costs vary from place to place. Commodore, as an example, went into mass marketing to merchandise their computers and equipment. You don't have to go to a special computer store for it.

Initially the set up with what I have here - the printer and the colored monitor and the disk drives - I think you can get into it for right around a \$1,000.00. And you've got a real nice setup to start with.

Family 3

What to look for in a dealer? I would say it is the ability to repair the computer at his premises. Is he strictly in business to sell computers or is he in the business in selling something else and selling computers as just a sideline?

When I bought a computer what I looked for was the software. Was the software out there what I wanted? Was there service? And then I looked at their hardware.

Moderator

Where to purchase is also part of the decision we have to make. And each of these families did it in a little bit different way. Now lets see if the families had any difficulties and if they did, what they did about them.

Family 2

The printer, with the Commodore 64, is a 30 character a second dot matrix printer which you can get as part of the Commodore system. It doesn't have descending characters. It's not a letter quality printer, but for most uses it's really outstanding.

About the only problem that I had with any of the equipment was with the printer. The first printer I got was not compatible with the 64. It was compatible with the Vic 20. It kept hanging up on me. I didn't know what the problem was. That was when Compu Serve came in handy. I called them and left a message. The next day they told me take it back and get a new one - a different model. I did and it works fine.

Family 3

I had some difficulty with this computer because I did not have a surge filter. So I, as the saying goes, smoked my keyboard - which means that smoke started coming out of the computer.

Part of what I got when I bought my computer was an extended service contract. They took care of everything at no cost to me and gave me a computer to use while they fixed mine. I think it, (the trouble), all boiled down to not buying a surge filter that was recommended.

Family 1

We haven't had any problems with it yet but like I said we haven't had it too long and we haven't done a lot with it, so far.

Moderator

A survey found that disk drives and printers were the equipment that had the most problems. One-half of the personal computer owners did have some problems with their computers but most of them were under warranty and didn't cost them anything except their time to have them in the shop. There were about 10% that did have \$100.00 repair bills or larger.

SUMMARY

Is now the right time to buy? Only you can decide that. About 1 to 2% of American families have decided that now is the time to buy and do have personal computers in their home.

If you're not sure, there are some things you can do to help you make your decision.

Computer Magazines

The first one is start out by reading. You can find magazines that you can understand and that have articles that are of interest to you. There are lots of computer magazines available. Some of the ones are Byte, InfoWorld, and Popular Computing.

Family 2

The second thing you can do is talk to personal computer owners and find out what information they have to share. Most of them are very willing to talk about personal computers with you.

Software

And three, you need to go and try several personal computer software programs that interest you and find out what hardware equipment is available.

Family 3

If you do decide to buy start using it and enjoying it, as Mike is. "Well, I'm really happy with it-- it's probably the best thing I've done."

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

Within the last 10 years, microcomputers have become a part of approximately 5 to 10% of the households in the United States. General information on the uses/benefits of a microcomputer to various family members has been reported to the general public and has created an interest in the topic.

Clientele of Washington State University (WSU) Cooperative Extension expressed their interest in increasing their basic awareness of microcomputers at the 1984 family living program planning meeting. The purpose of this project study was to provide WSU Cooperative Extension family living agents, volunteer teachers, and clientele with a set of instructional materials on the selection and uses of microcomputers in the home.

To determine specific information to be covered and the level of knowledge on microcomputers of the volunteer teachers, a questionnaire was mailed to possible program participants. Information gained from the questionnaire determined the general topics to be included in the leader training packet: (a) history of microcomputers, (b) home

use of microcomputers, (c) basic components of microcomputers, (d) criteria of evaluating the purchase of microcomputers, and (e) available resource information.

Related literature in these five areas was reviewed. This included educational materials on microcomputers requested from other Cooperative Extension state offices.

The general format of the training was similar to previous leader trainings done in other family living subject matter areas in central Washington. The lesson included objectives, visual aids, a leader's guide, an activity sheet, an Extension bulletin, information sheets, and an evaluation form. An additional evaluation form was mailed to volunteer teachers several months later. After the group lesson training packet was completed, a videocassette tape was made covering similar information included in the lesson.

Conclusions

There is a need as more research on microcomputers becomes available that it be shared with families. Jensen (1983) saw home economists as logical leaders for preparing the family to adapt to the microcomputer and also as a liaison between the family and industry to help in designing computer systems and software. She concluded,

As literature indicates, the useful family computer system will not exist until the family's needs are built into the system. Involving the family in the design of the computer system (this includes software as well as hardware) will provide the family and society with a valuable tool. The

family's needs, goals, and problems concerning the computer in the home should be expressed to the computer industry on a continuous basis.
(pp. 89-90)

Research-related information should also be shared with the computer industry.

Recommendations for Further Study

Jensen and Dickerson, who both completed research projects in 1983, found gaps in literature on microcomputers. Jensen (1983) stated, "Computers entered our environment so rapidly that little research has been completed on family-computer interaction" (p. 5). Dickerson (1983) found no studies exploring the difference between users and nonusers of personal computers (p. 6).

Jensen (1983) went on to say, "Literature suggests that a trend is developing which implies the discipline of computers is a male domain. Results from [her] study supports these findings" (p. 87).

Weinberg has gone a little bit further and used a term called cyberphobia to describe the condition. Cyberphobia is defined as an extreme anxiety produced by dealing with a high technology computer system (Wrege, 1982, p. 46). He and Anderson, a social psychologist with the University of Minnesota, found more women affected by cyberphobia than men. Further study is needed to answer the gender question: Do computers appeal more to males than females and if so what are the possible explanations why?

Further research is also needed to answer other questions related to family-computer interaction and the differences between users and nonusers. Four possible questions to be answered include: (a) Is the computer used mainly by family members individually or as a family group and what impact does this have on other family activities? (b) After microcomputers have been in the home for several years, are they being used for different tasks than during the first year after purchase? (c) What is the long-term impact of microcomputers on family activities and resource management? (d) Are microcomputers creating a computer literacy gap between young and old or rich and poor?

Wakefield felt, "There is no question that much needed research on the impact of home computer use on the family will increase dramatically in the next few years" (Barber, 1984, p. 6). This point was illustrated by the number of researchers receiving project grants from the American Home Economic Association (AHEA) to explore various aspects of microcomputer usage in home economics.

Three out of seven grants given by AHEA in 1984 were related to microcomputers and were titled: Managing Time With and Without Microcomputers in Families: Experience, Concerns, Self Assessment; Development of Microcomputer Courseware for Undergraduate Home Economics Curricula; and Determinants of Home Computer Usage and Impacts on Family Life (AHEA Action, 1984, pp. 1, 4).

More research-based information is definitely needed on microcomputers. Studies exploring the uses and the effects of microcomputers in the home are just beginning to be done. It will take a few more years for the results of these studies to be published and shared with other researchers, families, and the computer industry.

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APPENDIX A
COVER LETTER



CooperativeExtension
of Washington State University

37

YakimaCounty 233 Courthouse
Yakima, Washington 98901
509/575-4218

TO: Extension Homemaker Club Presidents
FROM: Cora G. Vowell
County Extension Agent
DATE: 11/14/83
SUBJECT: Microcomputer Questionnaire

The following questionnaire will help develop the program on "At Home with the Personal Computer" scheduled for the February leader training and also the mini-convention session in March.

If you know a club member or friend with a microcomputer, please ask them to do the questionnaire. Also, have the person representing your club at the February meeting fill one out. Try to get at least two completed.

Have them mail the completed forms back to me. The questionnaire is a self-mailer. The deadline for returning them is December 20th. If you would like to see the results of the survey note that on the form. Thank you for your time.

cc: Tom Quann
Don Chaplin

APPENDIX B
QUESTIONNAIRE



Hi,

The following questionnaire will help me develop the program "At Home with the Personal Computer" scheduled for the February leader training and also the Extension Homemakers' mini-convention scheduled in March.

Please take a few minutes to answer the questions. Mail the completed form back to me. It's a self-mailer. Thank you.

Cora G. Vowell
County Extension Agent

MICROCOMPUTER QUESTIONNAIRE

Name _____ Phone _____

Address _____

☐ Check if you would like to receive the survey results.



1. For what reason(s) would you attend a program on computers?

_____ curiosity about topic

_____ learning how to analyze needs prior to selection

_____ interested in home uses of microcomputer

_____ learning how to evaluate software programs

_____ other _____

2. What specific information do you want covered in the 1½ hour leader training?

3. How much time have you spent reading about microcomputers? _____ hours

4. Are you comfortable operating a microcomputer? ____yes ____no

5. What type of software programs would you like to use at the mini-convention?

6. Do you own a microcomputer? ____yes ____no

If you answered NO, stop here and return the questionnaire to me.
If you answered YES, CONTINUE ONTO THE BACK PAGE!

7. What brand of microcomputer do you own? _____
8. How long have you owned your microcomputer? _____
9. What type of peripheral equipment have you purchased?
- ___a) monitor ___c) printer ___e) modem
- ___b) disk drives ___d) joystick ___f) other _____
10. Why did you purchase a microcomputer? _____
- _____
11. Do you use your microcomputer? ___yes ___no
In what ways? _____
12. How long did it take to feel comfortable operating your microcomputer and using your software programs? _____ hours
13. Name the first three software programs you purchased.
- | <u>Program</u> | <u>Would recommend
to others?</u> | <u>Why or why not?</u> |
|----------------|---------------------------------------|------------------------|
| _____ | ___yes ___no | _____ |
| _____ | ___yes ___no | _____ |
| _____ | ___yes ___no | _____ |
14. Name any other software programs used regularly. _____
- _____
15. What do microcomputers do best for you? _____
- _____
16. What disappointments did you encounter? (What did you expect it to do that it didn't?) _____
- _____
17. Would you be willing to be videotaped or have slides taken of your computer set-up to be used in the February leader trainings? ___yes ___no

APPENDIX C

MICROCOMPUTER QUESTIONNAIRE SUMMARY

4. Are you comfortable operating a microcomputer? 12 yes 7 no 1 maybe
5. What type of software programs would you like to use at the mini-convention?
- (5) Household programs - bookkeeping, record keeping
- (3) Farming uses - record keeping
- Livestock uses
- Educational games
- Utilities - hooking up with other programs
- Spread sheets
- Budgeting programs
- Something easy to learn
- Word processing
- Storage
6. Do you own a microcomputer? 10 yes 10 no 2 plan on purchasing one
7. What brand of microcomputer do you own?
- | | |
|-------------------|-----|
| Commodore 64 | (4) |
| Commodore Vic 20 | (2) |
| Texas Instruments | (2) |
| Apple IIe | (1) |
| Kay Pro II | (1) |
| TRS 80 | (1) |
8. How long have you owned your microcomputer?
- | | |
|--------------------|-----|
| 1 month or less | (2) |
| 2 months to 1 year | (7) |
| 1+ years | (1) |
9. What type of peripheral equipment have you purchased?
- | | | | |
|-------------------------|----------------------|--------------------|---|
| <u>6</u> a) monitor | <u>5</u> c) printer | <u>2</u> e) modem | <u>2</u> T.V.
<u>2</u> tape drive
<u>1</u> 32K memory expansion |
| <u>5</u> b) disk drives | <u>5</u> d) joystick | <u>5</u> f) other: | |
10. Why did you purchase a microcomputer?
- (2) Educational use
- (2) Business
- On special at store
- To learn something about operating one
- The "in" thing
- Education for children
- To keep track of refunding coupons
- Use for genealogy
- Hobby
- Programing
- Household use
- For child's use

11. Do you use your microcomputer? 7 yes 3 no 1 family yes, I avoid

In what ways? genealogy
 (2) personal correspondence
 (2) hobby - experimenting; entertainment programming
 education for child
 (2) games for child
 keeping track of refunding coupons
 practice use
 record keeping, budgeting
 telecommunications
 address labels
 educational tool

12. How long did it take to feel comfortable operating your microcomputer and using your software programs?

still learning, many hours (2)
 0 - 5 hours (4)
 6 - 10 hours (1)
 20 - 30 hours (2)

13. Name the first three software programs you purchased.

<u>Computer</u>	<u>Program</u>	<u>Would you Recommend to others?</u>		<u>Why or why not?</u>
		<u>Yes</u>	<u>No</u>	
Texas Instruments	Teach Yourself Basics	x		good for basic programing you can do the same on paper good for 2 or 3 year olds
	Household Budget		x	
	Early Learning Fun	x		
	Wumpus			
	Record keeping			
Commodore Vic 20	Omega Race	x		too limited on my computer too limited on my computer too limited on my computer
	Radar Rat Race	x		
	Family Finance.		x	
	Home Inventory		x	
	Word Processing		x	
Commodore 64	Easy Script	x		complete and easy to use some better and more complete programs ease of use and dependable good application good application fun
	The Home Accountant		x	
	The Smart 64 Terminal	x		
	Graphics	x		
	Programmer Aide	x		
	Game	x		
TRS 80	LDOS 5.1.4	x		good operating system
	Deadline	x		

<u>Computer</u>	<u>Program</u>	<u>Would you Recommend to others?</u>		<u>Why or why not?</u>
		<u>Yes</u>	<u>No</u>	
Apple IIe	Apple Writer	x		easy to use
Kay Pro II	Perfect Writer	x		good spread sheet slowed it down too much
	Perfect Calc	x		
	Kaly Key		x	

14. Name any other software programs used regularly.

Commodore 64 Disk Manager
 Color Accountant
 Disk Duplicator
 M Files
 Word Processor

Commodore Vic 20 Games

Apple Educational Programs

15. What do microcomputers do best for you?

Organize and keep track of large amounts of data (2)
 Educational for children (2)
 Entertain children
 Saves time and space
 Edit writing

16. What disappointments did you encounter? (What did you expect it to do that it didn't?)

Some software problems - wanted more complete program, software description not available, poorly written manuals (3)
 Limited available internal storage
 Installation & operation functions
 Difficult to remember all the commands when don't use regularly
 None

17. Would you be willing to be videotaped or have slides taken of your computer set-up to be used in the February leader trainings? 2 yes 6 no 2 maybe

Thank you for returning your questionnaire. A total of 22 were received from four counties.

Sincerely,

Cora G. Vowell
 County Extension Agent

CGV:nh

1/25/84

APPENDIX D

COOPERATIVE EXTENSION RESOURCE MATERIALS--PERSONAL COMPUTERS

COOPERATIVE EXTENSION RESOURCE MATERIALS-PERSONAL COMPUTERS

PUBLICATIONS

<u>State</u>	<u>Title</u>	<u>Stated Cost</u>
Georgia	How To Choose a Home Computer (4/83) by Dr. Esther Maddux, Extension Home Economist	Free
	Microcomputers: A Family Affair PA-HE (10/83) by Dr. Esther Maddux, Extension Home Economist	Free
Illinois	Home Equipment for the 80's: The Personal Computer by Sheila Fitzgerald Krein & Jacqueline Anderson, Extension Specialists	
Kentucky	4-H Computer Project I: Learning About Computers 4-H 1077A (4/83)	
	4-H Computer Project II: Learning About Programming 4-H 1078A (6/83)	
	4-H Computer Project III: Using Computers in 4-H Projects 4-H 1079A (6/83)	
	Leaders Guide 4-H 1080ALG (7/83)	
Minnesota	Taking a Computer Into Your Home AD-BY 2201	
Mississippi	ABC's of Computers Publication 1295 (2/81)	
	How to Buy Computer Programs Information Sheet 1254 (10/83)	
	So You Want to Buy a Computer Publication 1352 (2/83)	
Missouri	Microcomputers in the Home - Part I The Computer as a Resource Publication 3810 (5/82)	
	Microcomputers in the Home - Part II A Guide to the Prospective Purchaser Publication 3812 (5/82)	
Montana	How to Select a Home or Personal Computer General Publication MT 8348 (9/83)	
	Computer Software Publication MT 8349 (9/83)	
	Computer Hardware Publication MT 8350 (9/83)	
Oklahoma	At Home with the Computer Publication T-4313 (4/83)	
	Home Computers: A Purchase Decision Publication T-4314 (4/83)	
Rhode Island	Computer Basics by Luane Lange; Family Housing and Management Specialist, University of Connecticut	
Tennessee	Home Computers Publication 1080 (4/83)	15¢
USDA/Extension Service	How to Shop for a Home Computer GPO 902-627 (9/83)	
Washington	Farming with Computers: What Are the Alternatives EB 0953 (9/81)	25¢

PROGRAM PACKETS/FLYERS

<u>State</u>	<u>Title</u>
Connecticut	The Newest Home Appliance - factsheet by Luane Lange, Family Housing and Management Specialist
Indiana	Software Forms 1/83 - factsheet by Dixie Porter Jackson, Purdue University Impact Printers 1/83 - factsheet by Dixie Porter Jackson, Purdue University
Michigan	Choosing a Home Computer - miscellaneous information sheets compiled by Irene Hathaway, Extension Family Resource Management Specialist
New Hampshire	Little Package, Big Deal - Is There a Computer In Your Life? - program packet by Shirley Buteau, Coos County Extension Agent
Oregon	Home Computers (SP53-301) 9/83 - factsheet by Suzanne Badenhop Extension Housing Specialist Computerese (SP53-302) 9/83 - factsheet by Suzanne Badenhop Extension Housing Specialist
Texas	Bits, Bytes and Nibbles - leader training program packet by Huella Campbell, Janie Crump, Extension Home Economists and Bonnie Piernot, Family Resource Management Specialist 6/83

NEWSLETTER ARTICLES

Hawaii	<u>Farm Management Report</u> prepared by Herbert K. Marutani, Extension Specialist in Agricultural Economics 3/82 newsletter on Computer and You
Kentucky	<u>Computer News</u> published by Committee on Computers in Extension (no date)

MISCELLANEOUS

Colorado	Making Friends with Change by Phyllis E. Worden, Ph.D., Program Leader, Extension Home Economics - presentation at Denver AHEA Computer Workshop
Illinois	"Needs of Illinois Home Economists" Masters Thesis Chapter 5 - Findings, Conclusions and Recommendations by Barbara Cooper, Extension Advisor Home Economics

SLIDE SETS

<u>State</u>	<u>Title</u>	<u>Cost</u>
Maryland	Is There a Computer in Your Life?	Each state receiving one free in early 1984 About \$40.00
Michigan	Purchasing a Home Computer?	
Wisconsin	Home Use of Microcomputers	\$49.00 purchase or \$30.00 rental(10 days)

SOFTWARE CATALOG

Florida	Updated Inventory of Agricultural Computer Programs
Hawaii	Computer Software Catalog - College of Tropical Agriculture and Human Resources (3/82)
Idaho	Catalog List of Software Packages - family, home, agri-business (for Apple II, II+, IIe) 9/1/83
Mississippi	Catalog of Microcomputer Software (developed by Mississippi Agricultural and Forestry Experiment Station, Mississippi Cooperative Extension and other land-grant universities (6/15/83)
Utah	List of Programs for Apple Computer 4/82

SOFTWARE

Kentucky	Fabric Stain Removal ANSER 2-101 Personal Grooming Products ANSER 2-103 Assess Your Stress ANSER 2-104 Dairy Foods & You ANSER 3-114 (TRS 80 models)	
South Carolina	Personal Computers and the Family (for Radio Shack Model II)	\$10.00-request from Emily Wiggins-Extension Family Life Specialist

Compiled by:

a G. Vowell
 Yakima County Extension Agent
 Washington State University
 12/83

APPENDIX E
PROGRAM EVALUATION

PROGRAM EVALUATION - "At Home...with the Personal Computer"

- 1) The number of people with whom you have shared your information: (put numbers in the blanks)
 - a. ___ one-on-one personal contacts ___ group meetings ___ mass media
 - b. ___ White ___ Black ___ Hispanic ___ Asian ___ Native American
 - c. ___ limited income
 - d. ___ parents with school age children
 - e. ___ women
- 2) The total number of hours you spent preparing and teaching the lesson was ___ hours.
- 3) What key ideas did you select for emphasis? _____

- 4) As a result of your lesson, how many people in your group: (put numbers in the blanks)
 - a. ___ learned about personal computers - one of the newest technologies?
 - b. ___ learned about the cost/benefits of personal computers?
 - c. ___ learned skills to select and use personal computers?
 - d. ___ learned about advantages and disadvantages of using personal computers in making management decisions?
 - e. ___ learned how to use software to make management decisions?
 - f. ___ with school age children, are you discussing personal computer uses with their children?
- 5) What information in the leader's guide was personally most useful to you? (check one or two items)
 - a. ___ home uses of the personal computer
 - b. ___ basic computer terms and definitions
 - c. ___ sources of additional information
 - d. ___ evaluating the decision making process in selecting a personal computer
- 6) As a result of participating in the program "At Home...with the Personal Computer" have you: (check all that apply)
 - a. ___ analyzed potential uses for a personal computer at home?
 - b. ___ decided to buy/not to buy a personal computer?
 - c. ___ increased use of presently owned personal computer?
 - d. ___ read additional computer books/periodicals?
 - e. ___ enrolled in a course on personal computer?
- 7) Comments? Ideas? Suggestions? _____

APPENDIX F
FY 1984 ANNUAL NARRATIVE REPORT

Upon Families

s/Volunteer Teachers and 35
will learn how to analyze
ies of personal computers
t of 15 days.

sion Homemakers.
s.
urchasing a personal computer.
ority audience.

Dorothy Ettl; Art Ries.
id volunteer teachers.
ersonnel.

m other states.

rogram participants.
ing packet.
i-Convention.
omputers.
Fever Days, Inservice

d by agent: 10 one-on-one,
eotape shown on local cable
viewing audience of 15,000.

d by volunteers: 68 one-on

d in target audiences by
ck, 1 Hispanic, 1 Asian,
women; 8 volunteers,
, 144 others.

d in target audiences by
me, 574 White, 0 Black,
Native American,
age children, 482 women.

f service given by volun-

<p><u>ACCOMPLISHMENTS/IMPACTS:</u> (Continued)</p> <ul style="list-style-type: none"> - People Involvement - KASA Changes - Practice Changes - End Results 	<p>(Continued)</p> <p><u>End Results</u></p> <ul style="list-style-type: none"> - 9 families gathered data on personal computers. - 11 families used data to decide whether to buy/not to buy personal computers. - 5 families increased use of personal computers.
<p><u>METHODS OF EVALUATION:</u></p> <ul style="list-style-type: none"> - Briefly list the major methods utilized to collect evidence of success or progress in accomplishing objectives 	
<p><u>FUTURE IMPLICATIONS:</u></p> <ul style="list-style-type: none"> - Program Content - Clientele to be Served - Research Needed 	<p>(Continued)</p> <p>"Hands on" experience is the best method for teaching. A series of lessons or an all day session is a good technique to use.</p> <p>Selection of software and hardware - comparing needs of purchaser and what's available in various price ranges - should be included in the lesson. Use outside resource people when necessary.</p>

Distribution:

- 1 Project Leader
- 1 District Supervisor (County and Area faculty)
- 1 County Chairman (County and Area faculty)
- 1 Department Chairman (State Specialists)
- 1 State Program Leader (State Specialists)
- 1 Self