

DOCUMENT RESUME

ED 254 623

CE 040 126

AUTHOR Thomas, Neil; And Others
 TITLE At Home in the Office. A Guide for the Home Worker.
 INSTITUTION Tennessee Univ., Knoxville. Office for Research in High Technology Education.
 SPONS AGENCY Office of Vocational and Adult Education (ED), Washington, DC.
 PUB DATE Dec 84
 CONTRACT 300-83-0176
 NOTE 145p.; For related documents, see CE 040 115-125. Product of the "High Technology Education: A Program of Work" Project.
 PUB TYPE Guides - General (050)

EDRS PRICE MF01/PC06 Plus Postage.
 DESCRIPTORS Automation; Business; Career Education; Data Processing; *Design Requirements; Guides; Human Factors Engineering; Individual Characteristics; *Information Processing; Microcomputers; Occupational Information; *Office Machines; *Office Occupations; Self Evaluation (Individuals); Telecommunications; White Collar Occupations; Word Processing; *Work Environment.
 IDENTIFIERS *Home Based Employment; *Telecommuting; Work Stations

ABSTRACT

This guide provides information to persons interested in establishing a work-at-home program, specifically those in clerical or support staff positions who use modern automated office equipment. The text is divided into two sections. The Home Worker section provides a summary of the At Home in the Office Project, personality characteristics believed to be related to successful home work programs, characteristics of work that seem to be suited for working at home, and laws and agencies that affect the home worker. The Online Lines section supplies information to help home workers select appropriate hardware and software for the basic work station and optional equipment to add to the basic design. Other topics include defining a work space, selecting appropriate furnishings, arranging the home work station, and telecommuting and its suitability for home workers. Five exercises are provided to help home workers evaluate the home work option more precisely. They cover assessing the suitability of one's personality and job to home work; assessing software needs; comparing hardware, software, and vendors; evaluating available software packages; and designing a home work space. Two other exercises help to figure the start-up costs and to ascertain the feasibility of telecommuting. A simulation of a typical home worker's day follows. A glossary, entitled "New Language for the Office," is attached. (YLB)

 * Reproductions supplied by EDRS are the best that can be made *
 * from the original document. *

ED2546

AT HOME IN THE OFFICE

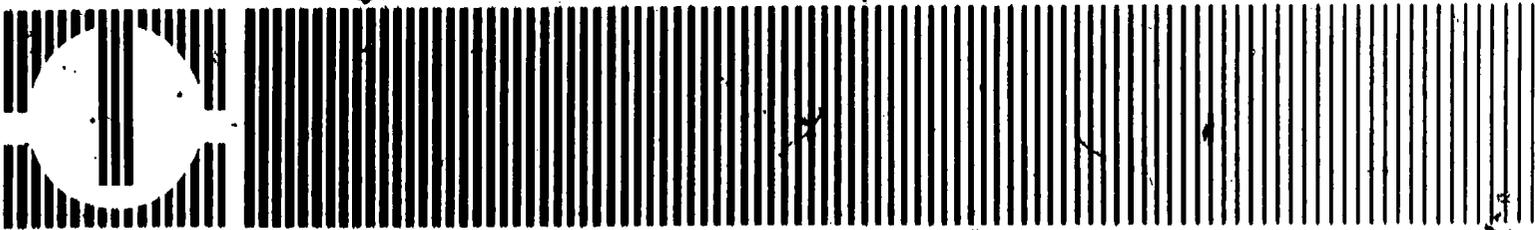
A Guide for the Home Worker

**U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)**

This document has been reproduced as received from the person or organization originating it.
Minor changes have been made to improve reproduction quality.

Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

AT HOME IN THE OFFICE



OFFICE FOR RESEARCH IN HIGH TECHNOLOGY EDUCATION
The University of Tennessee College of Education

AT HOME IN THE OFFICE

A Guide for the Home Worker

by

Neil Thomas, Graduate Research Assistant
Connie Conner, Graduate Research Assistant
Sheila Webster McCullough, Project Director
Elizabeth A. Overton, Research Associate.

Office for Research in High Technology Education
428 Claxton Addition, College of Education
The University of Tennessee, Knoxville, TN 37996-3400

December 1984

Sponsoring Agency:
U.S. Department of Education
Office of Vocational and Adult Education

CE 246/26

AT HOME IN THE OFFICE
A GUIDE FOR THE HOME WORKER

R01-1565-44-001-85

FUNDING INFORMATION

Project Title: High Technology Education: A Program of Work

Contract Number: 300830176

Source of Contract: U.S. Department of Education
Office of Vocational and Adult Education

Project Monitor: Richard DiCola

Contractor: The University of Tennessee

Project Directors: Janet Treichel
Sheila McCullough

Principal Investigators: At Home in the Office Study,
Sheila McCullough

COMTASK Database
John C. Peterson

State-of-the-Art Papers
Lillian Clinard

Disclaimer: The activity which is the subject of this report was supported in whole or in part by the U.S. Department of Education. However, the opinions expressed herein do not necessarily reflect the position or policy of the Department of Education, and no official endorsement by the Department of Education should be inferred.

Discrimination Prohibited: No person in the United States shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance, or be so treated on the basis of sex under most education programs or activities receiving Federal assistance.

FOREWORD

The Office for Research in High Technology Education at The University of Tennessee, Knoxville, is conducting a program of work on high technology and its implications for education. Funded by the U.S. Department of Education's Office of Vocational and Adult Education, the program addresses the skill requirements and social implications of a technology-oriented society. Issues concerning computer literacy and computer applications are a focus of the program. The balance between the liberal arts and technological skills and the complementary roles they play in enabling people to function in and derive satisfaction from today's high-technology era are also addressed. The program's efforts are targeted at secondary schools, two-year post-secondary institutions, community colleges, universities, industrial training personnel, and other education and training groups. /

The program consists of three major components:

COMTASK Database. COMTASK is a model of a computerized task inventory for high-technology occupations. The outcomes of the COMTASK system include a sampling of task analyses, the demonstration of how these task analyses can be rapidly updated, a manual for conducting task analyses to provide data for the system, and a guide to using the system.

State-of-the-Art Papers. A series of nine papers is being developed to address high technology and economic issues that are of major concern to education.

At Home In the Office Study. At Home In the Office is an experiment that has placed office workers and telecommuting equipment in the workers' homes to study the effects moving work to people rather than people to work. The implications for educators, employers, and employees will be significant, as work at home offers a possible avenue of employment for people living in rural areas, parents of pre-school children, handicapped individuals, and others.

ABSTRACT

This guide is designed to provide information to persons interested in establishing a home work program. The primary focus of this document is for people in clerical or support staff positions whose skills place them in a position to negotiate with one or more employers and who wish to work at home as an alternate work site. The text is divided into two sections--The Home Worker, and Online Lines. The Home Worker section provides a summary of the At Home in the Office Project conducted at The University of Tennessee, some personality characteristics believed to be related to successful home work programs, some characteristics of work that seem to be suited for working at home, and laws and agencies that affect the home worker.

The second section of the text--Online Lines--supplies information to help home workers select the appropriate hardware and software needed for the basic work station and optional equipment to add to the basic design. Also included is a chapter on defining a work space for the home office, selecting the appropriate furnishings, and arranging the home-work station. Another chapter explores telecommuting and its suitability for home workers. Also included are some guidelines for work at home. To help develop a better understanding of high-technology vocabulary, a glossary of terms used in the modern office has been included.

Five exercises have been developed to enable home workers evaluate the home work option more precisely. One such exercise helps to determine if the home worker's personality and current job are suitable for home work. Another set of exercises is devoted to (a) assessing software needs, (b) evaluating available software packages, and (c) comparing hardware, software, and vendors. Also presented is a sixth exercise to figure the cost of starting up an office in the home. The seventh exercise has been designed to help ascertain if telecommuting is an economically feasible option.

Of special interest will be the simulation of a typical home worker's day. Situations are presented which offer two alternatives. You must decide which of the choices that you, as a home worker, will follow. Subsequently, based upon your decision, different scenarios will occur.

ACKNOWLEDGEMENTS

The staff of the At Home in the Office Study sincerely appreciate the support and consideration of the participants of the project. The home workers, their supervisors, co-workers, and families contributed greatly to the success of the study. Special thanks go to Word Processing Systems, Inc. for providing equipment and support services.

We wish to thank the following reviewers for their contributions, support, and suggestions:

Ted E. Climis
IBM

Gil Gordon
Gil Gordon Associates

Ronald A. Manning
Control Data Corporation

Margrethe Olson
New York University

Major Ooten
Word Processing Systems, Inc.

Marla Peterson
The University of Tennessee

Nelson B. Phelps
Mountain Bell

Bill Radcliff
The University of Tennessee

Steve Shirley
F International (USA), Inc.

Ray Smith
The University of Tennessee

TABLE OF CONTENTS

	Page
FUNDING INFORMATION	iii
FOREWORD	iv
ABSTRACT	v
ACKNOWLEDGEMENTS	vi
I. INTRODUCTION	1
II. THE HOME WORKER	3
A Review of the At Home in the Office Research Project	4
Types of Work	5
Managers	8
Workers	9
Job Satisfaction	9
Changes in Work-Related Activities	10
Changes in Job Satisfaction	13
Observations and Conclusions	18
Work at Home: An Option for Organizations and People	21
Organizational Motivation	21
Individual Motivation	22
Psychological Issues for the Individual	23
Economic Issues to the Individual	26
Fitting Jobs to People	28
Laws And Agencies Affecting the Home Worker	30
Selecting a Business Entity	30
Tax Laws	31
Federal Tax	34
Zoning	35
The Law and You, the Employer	36
Specialists	37
Agencies, Organizations, and Associations	39
III. ONLINE LINES	43
An Introduction to Hardware and Software That Could Be Used In the Home	44
Hardware	44
Optional Equipment	49
Software	51
Acquiring Equipment	53

III. ONLINE LINES (continued)	Page
Defining Work Space, Choosing Furnishings and Accessories, and Arranging the Home Work Station	56
Determining Available Space for the Home Office . . .	56
Furnishings and Accessories	57
Environmental Factors	59
Arranging the Work Station	61
Telecommuting	63
Telecommuting--Its Beginning	63
Telecommuting and Information Occupations	64
Telecommuting and the Word Processing System	64
Telecommuting Experiences	67
Guidelines for the Home Worker	71
IV. EXERCISES	74
Exercise 1: Self Assessment Survey	75
Exercise 2: Software Needs Assessment	82
Exercise 3: Hardware, Software, and Support Considerations	84
Exercise 4: Software Evaluation	88
Exercise 5: Design Your Home Work Space	90
Exercise 6: Start-Up Costs	92
Exercise 7: Cost of Commuting vs. Telecommuting	96
V. SIMULATION	102
A Day in the Life of a Home Worker	103
VI. NEW LANGUAGE FOR THE OFFICE	125
VII. BIBLIOGRAPHY	130

LIST OF TABLES

Table		Page
1	Home Work Stations and Task Characteristics	7
2	Initial Job Satisfaction Responses	10
3	Final Job Satisfaction Responses	14
4	Options for Acquiring Equipment	54
5	Equipment, Furniture, and Accessories Needed in Basic Home Work Station	59

LIST OF FIGURES

Figure	Page
1 Sample Job Analysis Form	8
2 Job Characteristics Model of Work Motivation	24
3 Simulation Diagram	105

x

I. INTRODUCTION

The advancements in telecommunications have enabled Toffler's prediction of the Electronic Cottage to become a viable option for some individuals. However, very little has been published to help people set up a work-at-home situation.

Working at home is not a new trend. Professionals in programming, research, architecture, word processing, and management, to name but a few career areas, have found working at home a preferred way to earn an income. In the past decade advances in telecommunications and computers have combined to make working at home a more attractive choice for both workers and employers. Employers are discovering that some of today's employees are placing increasing value on the quality of life and are looking for ways to overcome (a) the loss of time necessary to commute to and from work, (b) the cost of clothes required for work, and (c) the time spent away from their families because of work. In response, businesses wanting to attract and retain professional workers have increased both the number of home workers and the scope of the home work performed.

The description of home workers varies in individual and organizational characteristics. There is the individual employed full-time by a single organization via formal contract, receiving the same support and benefits as any other employee but working at home, an alternative work site. Or there are the self-employed contractors who use the home as their primary work site, provide for their own support and benefits, and contract their services to multiple employers. Other categories of home workers are distinguished by the following factors: (a) the amount of support provided by the home worker vs. support provided by an organization, (b) the number of employers to which the employee is contracted, and (c) time spent with the home as primary work site.

A concept used to help distinguish between full-time home worker employed by one company and a contract worker employed on a contract basis is the idea of workplace augmentation vs. workplace substitution (Olson & Tasley, 1983). Organizationally linked home work is used to augment the existing organizational workplace as an alternative to the conventional office (Olson & Tasley, 1983). Self-employed home workers use the home as a substitute work site to replace the conventional workplace.

The information in the following text, exercises, and simulation is based on (a) a review of current literature on the home work phenomenon, and (b) research conducted at The University of Tennessee, Knoxville. A review of recent articles about the potential of working at home provides interesting speculation but little factual information. There are many popular articles describing anecdotal home work incidents but few published research studies that have investigated the relationship between individual characteristics and the success of working at home. Some proponents of the

home work concept suggest that, within the next 15 years, 10 to 15 million people will be working at home (Grievess, 1984). These proponents say that people working at home will be more satisfied, more productive, and have greater flexibility to schedule their lives. Opponents of home work claim that home work programs represent a return to turn-of-the-century sweatshops. Some opponents state that employers will use home work programs as a method to circumvent minimum-wage and child-labor laws, to reduce benefits, and to pass on costs to the home worker that traditionally have been absorbed by the employer.

Home work is not for everyone. This guide should enable you to make an informed decision about your prospects for a successful work-at-home program.

II. THE HOME WORKER

A REVIEW OF THE AT HOME IN THE OFFICE RESEARCH PROJECT

The concept of home work is not new. Historically, the Industrial Revolution (1700s) marks the beginning of a shift from home-based businesses to centralized work sites. The shift from home-based businesses to centralized work sites was spurred on by improvements in automation and the development of modern assembly line techniques. However, this trend may begin to reverse itself in the near future. John Naisbitt (in Megatrends, 1982) says that the United States is gradually changing from a production oriented society to an information oriented society. Naisbitt states that workers in the United States producing, manipulating, and transmitting information are the largest segment of the workforce.

Workers engaged in information occupations already make up over 60 percent of the labor force (Naisbitt, 1982). The U.S. Bureau of Labor Statistics predicts that the demand for workers with information processing abilities will continue to increase for the next decade at a rate of 10 to 12 percent a year (Naisbitt, 1982).

Modern information processing equipment can allow some workers, such as word processors, computer programmers, and others whose jobs involve the creation, manipulation, or transmission of information to move from a centralized office to a home-based work station (Nilles, 1976). By combining modern telecommunications facilities such as telephones, teletypewriters, radio, television, or satellite transmission devices with modern information processing devices such as word processing equipment or computers it is now possible for an individual to communicate with a centralized office from a remote work site. The use of telecommunications equipment and computer systems as a substitute for commuting to work is known as telecommuting (Nilles, 1976). Some experts predict that as many as 7.5 million workers currently have the potential to telecommute (Grieves, 1984).

Although the concept of working at home and telecommuting to a central office has been written about extensively in the popular press, little research has actually been conducted to determine the impact of home-based work on workers, their managers, and their co-workers. In light of the potential number of workers and employers who might consider telecommuting as an option and the lack of research conducted in this area, a program of research was instituted at The University of Tennessee, Knoxville. Sponsored by the U.S. Department of Education, Office for Vocational and Adult Education, this program examined aspects of home work. Some factors of home work investigated by these researchers included: (a) how work performed in the traditional, centralized office changes with the introduction of a home work program; (b) how individual job satisfaction is affected by working at home, and (c) what the effects of a home work program are on home workers, managers, and co-workers.

The eighteen month research project conducted at The University of Tennessee was entitled At Home in the Office (AHIO) and is described in this chapter. Descriptions of the people who participated in the study and the types of work that were examined are included. Also included in this chapter are some of the preliminary findings of the study. Finally, some of our conclusions and observations about the home work project are offered.

Information about the home work program was collected by a variety of methods including interviewing the participants, their managers, and their co-workers; having the home workers complete and maintain daily work logs; and obtaining samples of their work. These data were obtained over a 12 month period out of which the participants were to spend nine months using their homes as remote office sites. The program was designed to collect information before the participants began working at home, during the nine months that they were working at home, and (in a follow-up period) after participants returned to the office.

Home workers and their managers were interviewed at the beginning of the project to assess duties and tasks of workers. Based upon the initial assessment of office needs, a specific work station was configured and installed for each home worker. Although a duplicate work station in the home is not considered to be necessary for all home workers to telecommute, for the purposes of this study duplicate work stations were installed within the office from which the worker had come.

Types of Work

The jobs performed by the participants differed along certain characteristics. All jobs were selected on the basis of: (a) equipment considerations; (b) the amount of interaction necessary between the participant and other individuals in the course of work; (c) the amount of uninterrupted time necessary to complete the task; and (d) the amount of structure built into the job.

Equipment. All jobs were chosen because of their current use of modern automatic office equipment such as word processing equipment or facsimile transmission devices. Four types of work stations were established. The basic work station consisted of a dedicated word processor with telecommunications capability, a letter quality printer, and a modem to communicate between the home and office work stations. The first home office work station configuration consisted of the basic work station. The second configuration began with the basic work station and added a facsimile device to transmit printed or graphic material between work stations. The third configuration included both the basic work station and facsimile, and added an extension phone connected directly to the centralized office. The fourth work station configuration consisted of

the basic work station, facsimile, office extension phone, and dictation equipment for the transcription of dictated material by the home worker at the home work station.

Interaction. The amount of interaction between the worker and other individuals is important in the selection of a job to be conducted at home. If the job requires the worker to interact frequently with other people, then the job may not be appropriate for a home work program. Olson (1982) states that jobs requiring little or no interaction with others are best suited for home work programs. The amount of work-related interaction between a participant and others was established by the number of hours a participant was required to be present in the central office per week. Supervisors determined the amount of time that workers spent in the office. Each office had different requirements ranging from no time (0 hours), 1 full day (8 hours), 3 half days (12 hours), to 2 full days (16 hours) in the office.

Uninterrupted time. Jobs that required periods of uninterrupted time to complete their tasks were selected as better suited for the home work project. This job characteristic was chosen as appropriate for the jobs to be conducted at home so as to take advantage of the potential that home work has for establishing periods of uninterrupted time. The participants initially estimated the amount of time necessary to complete their specific job if they were able to proceed uninterrupted. These estimates ranged from less than an hour for some tasks to two full days (16 hours) for other tasks.

Task structure. The task structure of the jobs was considered to be an important factor in the selection of jobs to participate in the work-at-home program. Since the structure of the job was expected to differ in the home work environment compared to the office work environment, the task structure of the jobs selected represented a range of task structures. For the purposes of this study, task structure was determined by four characteristics: feedback (to the worker from the task); task complexity; job clarity; and goals (to be met).

Each participant was asked to evaluate the amount of feedback they received about the quality of their work. One worker said that she received little feedback from her job. The other three workers said that they received a large amount of feedback.

Task complexity refers to the variety of skills that the workers believed to be necessary to accomplish their jobs. These values ranged from very low to high task complexity.

Job clarity refers to the way that the participants felt when asked if they knew what was required of them to adequately complete their work. The workers responses ranged from low job clarity to high job clarity.

All participants were asked if they had clear goals or well established deadline requirements in order to successfully complete their work. All had clearly defined goals to meet, but the time required to meet those deadlines ranged from less than an hour for some tasks to three weeks for other tasks. Overall, the participant's task structure ranged from very low to high. Table 1 describes the four home work stations and task characteristics.

TABLE 1
HOME WORK STATIONS AND TASK CHARACTERISTICS

<u>Site</u>	<u>Equipment</u>	<u>Time in Office</u>	<u>Time per Task</u>	<u>Task Structure</u>
1	Basic Work station*	2 days each week	1-16 hours	High
2	Basic Work station Facsimile	0 days	1-16 hours	Moderate
3	Basic Work station Facsimile Extension phone	3 1/2 days	4-16 hours	Very Low
4	Basic Work station Facsimile Extension phone Dictation	1 day	1-4 hours	Low

*Basic workstation consists of word processor with telecommunications capability, letter quality printer, and modem.

In addition to identifying the task structure characteristics of feedback, complexity, clarity, and goals, each worker was asked to complete a detailed task analysis describing the task performed by the worker and the amount of time necessary to complete the task. Figure 1 shows a sample list of tasks that might be performed by a worker.

Each worker completed a task analysis for their particular job. The initial task analysis was used to establish the precise tasks that were performed by the worker in the central office. Five months into the remote work program a second task analysis was completed by each worker while working at home in order to compare work in the central office with work conducted at home.

FIGURE 1
 SAMPLE JOB ANALYSIS FORM

How Much Time Do You Spend Performing These Tasks?

- 0 - Not Performed
- 1 - Very Little
- 2 - Limited Amount
- 3 - Moderate Amount
- 4 - Considerable Amount
- 5 - Great Amount

WORD PROCESSING

These tasks involve what you do to make the word processing equipment work--the selecting and pushing of buttons to make the machine operate. They do not include the typing portion of the work nor the editing, proofing, and so forth.

Task	Time spent doing task
A1 Turn on or turn off equipment	
A2 Select program (Word processing, graphics, printing, communications, utilities/backup, etc.)	
A3 Select tasks (text, files, communications, etc.)	
A4 Request tasks (create, use, display, etc.)	
A5 Select and enter input command. (Just the commands--not the typing)	

Managers

The managers of each office were interviewed to determine why they decided to begin a home work program, what their expectations were regarding the program, and why they selected the person chosen to participate. Generally, the managers were enthusiastic about the potential of a home work program. Managers felt that such a home work program could provide their workers with the opportunity to complete their jobs in less time than it would normally take to complete in the office. They felt that working at home would result in a reduction in the number of interruptions that occurred in the office. Equally important was the fact that all managers viewed the opportunity to work at home as a non-traditional benefit that could be given to an employee. Thus, the home work program was seen as a reward to the worker, with the possibility of improving

employee performance simultaneously. Managers stated that the home workers were chosen because they were excellent employees and, in the managers' opinion, could work very well without constant supervision. At least one of the managers felt that working at home was a way to retain the services of a very good employee who otherwise might have left the department.

Workers

One participant was chosen from each of four departments at The University of Tennessee. The participants were all female, ranging in age from 20 to 35, married, and with dependent children. All of the home workers were classified as support staff by the University. All of the participants had expressed an interest in working at home as a way of combining career and family needs.

An initial interview was conducted with each home worker to ascertain their reasons for wanting to work at home and their expectations for the home work program. Although each worker had unique reasons for wanting to work at home, they also had some common bonds. All wished to spend a greater amount of time with their children. One participant said that it would be the last year for her child to be at home before beginning school and she wanted to spend that time with the child. A commonly cited reason for working at home was the high cost of child care services. All participants indicated that a portion of their earnings went toward child care costs; they anticipated that working at home would be an option that could reduce some of their expenses. All said that they felt that their job could be completed more efficiently and with greater speed if they had fewer interruptions during the day.

When asked about expectations for the home work program one participant replied that she expected to be happier at home than in the office. She said that she believed working at home would relieve some anxieties and frustrations that had built up in the office. All workers said that they expected to be able to work as well or better at home when compared to the office. They all said that they did not expect their family life to interfere with their job performance, and that they did not expect their relationships with their supervisors and co-workers to change.

Job Satisfaction

A job satisfaction questionnaire, the Job Description Index (Locke, et.al., 1969), was administered to the participants one month before they began working at home for two reasons: (1) to assess each person's satisfaction with their job while in the office; and (2) to establish a base level of satisfaction, to be compared against later measures of satisfaction. The Job Description Index (JDI) identifies five factors that

contribute to job satisfaction--work, supervision, people, pay, and promotion. The results of the initial job satisfaction measures are reported in Table 2. (To protect the identities of the home workers, the reporting of their job satisfaction responses in Table 2 does not correspond to the work sites listed in Table 1.)

TABLE 2
INITIAL JOB SATISFACTION RESPONSES

Participant	Satisfaction With				
	Work	Supervision	People	Pay	Promotion
1	Moderate	High	High	Moderate	Low
2	Moderate	High	Moderate	Low	Low
3	Low	High	Very Low	Low	Very Low
4	High	High	High	High	High

All of the participants reported they were satisfied with the supervision that they received from their respective managers. However, responses varied from very low to high for the four other categories. Overall, one worker said that she was not satisfied with her current job; another worker was very satisfied with her job. The other two workers said that they were generally satisfied with their jobs, but that there were aspects of their work with which they were not satisfied (e.g., promotion opportunities).

Once the participants began working at home, the managers and workers were interviewed on a monthly basis. After the home work program had been in operation for five months, an interview was conducted with co-workers of the home workers. The purpose of these interviews was to solicit the observations of individuals not formally part of the home work program but nonetheless affected by it.

Changes in Work-Related Activities

The first two months that the work-at-home program was in operation was a period of adjustment for both the home worker and the central office. Some aspects of the remote work program that necessitated adjustments by the central office and home worker were: (1) establishing the work stations, (2) work pickup and delivery, and (3) redefinition of tasks and responsibilities.

Work stations. Initial adjustments had to be made by both the central offices and the home workers in establishing their respective work stations. The central offices were able to establish work stations with relative ease. The office space that had been occupied by the home worker could be converted into a new work station. The home worker had to either create a new work station or convert existing home space into a remote work station. Each home worker established a permanent work station, but its location in the home varied according to the needs and desires of the home worker. Some workers set up their work stations as separate offices away from the rest of the house; other workers incorporated their work stations into the flow of household activities. In the first home work situation, the workers were able to separate themselves from the household environment when it was "time to go to work," thereby creating a division between home and work roles. In the second work-at-home environment, the workers merged their work roles within their home roles. This allowed them the opportunity to complete their job-related tasks while also engaging household-related tasks (e.g., childcare).

Work transmission. Since the types of work performed by the home workers differed between departments, each office and home worker pair made different arrangements about the transmission and delivery of work. For the workers who were required to be in the office sometime during the week, the pick up and delivery of work was simplified. Generally, they would pick up or deliver material only on the days that they were to be in the central office. For the one person who was to stay at home all week, a courier system was devised to transmit work between the central office and her home work station. That is, her husband would stop off on his way home from his job to pick up or deliver material. These work transmission procedures evolved during the first two months of operation in response to the different demands placed on the offices and home workers.

Redefinition of work. When each department initially considered establishing a work-at-home program, certain jobs were selected as more appropriate for home work than others. No job consisted of a single task to be completed by the workers, but instead, each job contained multiple tasks for which the workers were responsible. In addition, while the workers were in the central office they would assist co-workers on an informal basis by temporarily assuming duties and responsibilities not listed in their formal job descriptions. With the introduction of a home work program, changes occurred in the types of tasks that the home workers completed. These task changes resulted in the redefinition of the job responsibilities for the workers, their managers, and co-workers.

For example, a problem that quickly arose for one department concerned the answering of the telephone. Although not part of the home worker's job description, the office found that the worker had spent considerable time in answering the telephone. When she began working at home, the office had to assign a different person the responsibility of answering the telephone. Reducing the amount of time that the home worker spent on the

phone increased the amount of time she was able to concentrate on her formal duties but resulted in a change of duties for a co-worker. The home worker felt that she was able to do her job more efficiently. The co-worker felt that she was being asked to assume the home worker's job and, when interviewed, said that she was unhappy with the situation.

All of the departments involved with the AHIO study reported changes in the duties and responsibilities of the home workers and their co-workers during the first two months of the study. Overall, the net result of redefinition of duties and responsibilities was a clarification of what work was to be completed by the home workers and what work was to be performed by their co-workers.

In general, the nature of the work to be completed by the home workers was changed to reduce the amount of interaction between the home workers and others, increase the amount of uninterrupted time that could be spent on a task, and increase the amount of structure for the job. Co-workers of the home workers were formally assigned or informally assumed some of the previous duties and responsibilities of the home worker.

Once the initial adjustment period had ended, each office and home worker had an established, standardized work routine that they usually would follow. The offices had established procedures for the transmission and reception of work acceptable to both the office managers and the home workers. The home workers had determined when they would usually begin and end their work day and when they would actually be processing their day's work. For example, one home worker stated that she would begin her work day at 8:00 a.m. and might not finish until 9:00 or 10 p.m. that night. However, during the day she would work for a few hours in the morning, take a break, perform some household tasks, run errands, spend time with her family and friends, and after dinner she would complete her job-related duties while watching television with her husband. So that although her "official" work day went from 8:00 a.m. to 10 p.m., the actual amount of time spent on job-related tasks was less than her traditional eight hour day.

The majority of home workers participating in this program were able to complete their work in less time than expected. One person said she was able to complete in two hours at home the same amount of work that would have taken all day in the office. The workers attributed their productivity to three factors: reduced interruptions, fewer distractions, and greater ease in the start up of work. While at home, they experienced longer periods of time without interruptions. Thus, they were better able to complete a task in one sitting rather than to be interrupted and have to resume the task later. They also reported there were fewer distractions working at home than there were in the central office.

Interruptions and distractions can be distinguished from each other by the amount of choice that a person has in responding. Interruptions are

caused by an external agent (e.g., the phone ringing, or a child crying) and a worker must respond immediately to the cause of the interruptions. Distractions (e.g., a piece of cake in the refrigerator) are more voluntary in nature. That is, a worker may put off or refuse to succumb to the distraction, but must react quickly to an interruption.

One distraction often mentioned by the participants as present in the central office was the desire to converse with co-workers about nonwork-related topics. The home workers reported that when working at home, the amount of social interaction between themselves and their co-workers was reduced and the nature of the interaction was changed. The home workers said that they talked with their co-workers for short periods of time, less frequently, and usually about work-related issues when working at home. When the workers were in the central office, they would be more likely to talk with their co-workers for long periods of time, more frequently, and about nonwork-related issues.

The third factor that the participants said helped increase their productivity was the reduced amount of time necessary to begin working. The workers stated that they were able to begin a task as soon as they desired and they did not have to depend upon other individuals in order to accomplish their tasks. They reported that they knew what needed to be accomplished and when the task needed to be completed. They said that their work was usually waiting for them at the start of their day and that the time normally spent waiting for work was reduced or eliminated.

Changes in Job Satisfaction

While the work-at-home program was in operation, satisfaction measures were solicited from the home workers, managers, and co-workers. The JDI (Locke, et. al., 1969) was administered to the home workers twice while the work-at-home program was in progress at different times to determine if the home worker's satisfaction with the five factors measured by the JDI (i.e., Work, Supervision, People, Pay, and Promotion) changed while they were participating in the home work program. The managers were interviewed on a monthly basis and asked to evaluate the performance of the home workers and the effects of the work-at-home program on the employees who remained in the office, and to provide an overall evaluation of the program. The managers were also asked during each interview session if they would continue the home work program after the nine month study period had ended. The co-workers were interviewed once to determine their overall satisfaction with the home work program and their evaluation of the future success within their department.

The home workers. When interviewed, the participants of the work-at-home study said that overall they were very satisfied with the home work program. They stated that working at home allowed them the freedom to be with their family while maintaining a career. However, some of the workers

had complaints about some aspects of the home work program. One worker felt that she was doing far more at home than she would do if she were in the central office. She viewed the fact that she was more efficient at home as a possible detriment. She felt that her co-workers were transferring their tasks to her as a way of reducing their work load. Despite feeling that she was working harder than she would in the central office, she still felt that she was better off working at home because of the opportunity to schedule her own time.

Another worker had the opposite problem. She stated that she had large periods of time with no work to complete. She said that she would have preferred to be busier during the day. She added that, as long as she did not have any work to finish, she would prefer being at home to being in the central office.

An inspection of the home workers' responses on the JDI revealed that four out of the five factors tested remained constant during the study period. The only factor that appeared to change was the home workers' reported satisfaction with promotion. Each of the home workers reported a decrease in their satisfaction with promotion opportunities. That is, they felt less satisfied with their chances for promotion at the end of the study period than they did at the beginning of the study (See Table 3).

TABLE 3
FINAL JOB SATISFACTION RESPONSES

Participant	Satisfaction With				
	Work	Supervision	People	Pay	Promotion
1	Moderate	High	High	Moderate	Very Low
2	Moderate	High	Moderate	Low	Very Low
3	Low	High	Very Low	Low	Very Low
4	High	High	High	High	Low

Although, initially, three of the four workers reported low satisfaction with promotion, all four workers were less satisfied at the end of the study period than they were in the beginning. When asked about their decreased satisfaction with promotion opportunities, most of the home workers' replies expressed the idea that their current jobs had limited potential for advancement. They stated that they desired better jobs not currently available to them. From the home workers' responses to further questioning, it became apparent that during the work-at-home experience, there were increased future job expectation. When home workers compared