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# ADOPTION OF SUPPLEMENTAL WORK-AT-HOME: A COMPARATIVE ANALYSIS

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## ABSTRACT

The primary purpose of this study is to develop a deeper understanding of the dynamics of the adoption of SWAH. Specifically, it examines how the work and family environments of dual-career male and female and traditional male parents who perform SWAH differ from the work and family environments of their cohorts who do not. People who perform SWAH were found to work significantly more hours per week and more hours at home than those who did not adopt SWAH. The data indicates that men and women who have higher level more challenging jobs (i.e., greater work expectations and lower role clarity) were more likely to adopt SWAH than were men and women with fewer career demands. There were no significant differences in the family environments of men who did and did not adopt SWAH. Perceived family responsibility (i.e., family involvement, family expectations) was associated with a woman's tendency to adopt SWAH.

## 1. INTRODUCTION

Computer and telecommunications technologies are enabling flexibility in work arrangements that was previously unavailable (Olson 1982, 1983; Schiff 1983; Leider 1988; Vitalari and Venkatesh 1989). In particular, these technologies are allowing individuals to telecommute (Nilles et al. 1976; Toffler 1980) or perform computer aided supplemental work at home (Vitalari and Venkatesh 1989). Computer-aided supplemental work at home (SWAH), as defined by Vitalari and Venkatesh, is a work arrangement where the home is used as a setting to perform job-relevant work on a computer outside of regular office hours. The term supplemental signifies that the work done at home supplements time spent at the office and distinguishes this work arrangement from telecommuting, where time spent working at home replaces that done at a central office location.

To date, most research has focused on telecommuting rather than SWAH. This occurs despite the fact that (1) previous studies have found that the number of employees using SWAH is large (greater than 30%) and growing rapidly (Kraut 1987 1988 1989; Olson 1985; AT&T 1982; Christensen 1988; Pratt 1987; Horvath 1986; Vitalari and Venkatesh 1989) and (2) that results from telecommuting studies may not be generalizable to populations who perform SWAH.

Studies dealing specifically with SWAH have attempted to identify work and family variables that explain the amount of time spent performing SWAH (Vitalari and Venkatesh 1989), and the attractions (Duxbury and Higgins 1990) and consequences of this work style (Duxbury and Mills 1989). The primary purpose of this study is to develop a deeper understanding of the dynamics of the adoption of SWAH. This research is significant in that it provides needed data on a trend that is becoming increasingly prevalent. By identifying the factors that encourage or discourage the adoption of SWAH, this research can provide direction to individuals and organizations who are considering the use of SWAH.

## 2. LITERATURE

SWAH is a work arrangement that bridges two different social contexts: the organizational setting and the home. The literature suggests that an individual's tenancy to adopt SWAH is likely to be affected by their family life (Portner 1983; Leider 1988; Antanoff 1985) as well as by the work itself (Kraut 1987; 1988; Huws, Korte and Robinson 1990). It is our contention that SWAH will only be adopted by individuals who perceive that there is a match between their work and family needs and the work arrangement's capabilities (Dutton, Kovaric and Steinfield 1985).

The following questions were formulated to guide this research.

**Q1: How does the work environment of individuals who perform SWAH differ from the work environment of individuals who do not?**

Hackman and Oldham's Job Characteristics Model (1980) and a relatively large and diverse body of homework literature was used to draw up a list of work variables that could possibly differentiate the work environments of individuals who performed SWAH from the work environments of individuals not using SWAH.

The following seven aspects of the work environment were examined in this comparison:

- (1) task autonomy: the ability to perform one's job functions independently and control one's work (Quinn and Staines (1979)
- (2) role clarity: an individual's level of understanding about job roles and the criteria of adequate performance (Quinn and Staines 1979)
- (3) task variety: the number of exceptions encountered in the characteristics of work (Quinn and Staines (1979);
- (4) work role expectations: perceived pressures on an individual to work more hours and assume increased work responsibilities (Quinn and Staines 1979);
- (5) work involvement: a psychological response to one's current job, the degree to which a person is identified psychologically with the job, and the importance of the job to the person's self image and self-concept (Lodahl and Kehner 1965)
- (6) job satisfaction: an effective reaction or feeling by an employee on how happy or satisfied he/she is with their job, supervisor, co-workers, pay, and current and future career progress and potential (Quinn and Staines 1979); and
- (7) time (hours) spent in paid employment per week.

Autonomy has been cited as a main attraction of homework (Huws, Korte, and Robinson 1990; Beach 1989). Beach, for example, found that people who worked from home perceived that the greater work time flexibility associated with this work style increased their autonomy and control. The fact that their work could be punctuated, reconstructed, and made malleable to respond to

family needs was an important incentive to perform homework.

High role clarity and low task variety has been viewed in the literature as necessary preconditions to blue-collar telecommuting (Kraut 1989; Huws, Korte and Robinson 1990). Many managers perceive that blue-collar employees cannot work at home without supervision unless their job tasks are straightforward, clear cut and can be quantitatively evaluated (Duxbury, Higgins and Irving 1987). There have been no studies which have linked role clarity or task variety to SWAH for professional employees.

A number of studies (e.g., AT&T 1982; Huws, Korte and Robinson 1990; Kraut 1987; Vitalari and Venkatesh 1989) suggest that those employees who have higher work expectations, are more involved with their work, and spend more time in paid employment per week than their co-workers are more likely to perform SWAH. Kraut (1989) suggests that this occurs because SWAH enables employees to increase their output by performing overflow work in the evenings or on weekends in an environment with fewer distractions than the conventional office.

The literature also suggests that people who perform SWAH will be more satisfied with their job than those who do not use this work arrangement. Beach, for example, postulates that some family-related sources of work strain and conflict which are detrimental to job satisfaction are eliminated with SWAH.

**Q2: How does the family environment of individuals who perform SWAH differ from the family environment of individuals who do not?**

Little empirical research has been carried out on the effects of homework on relationships and activities within the home (Huws, Korte, and Robinson 1990). That which is available, however, supports the contention that the family environment of the supplemental homeworker will be quite different from that of the non-supplemental homeworker.

Five aspects of the family environment, chosen to correspond to those selected to evaluate the work environment, were examined in this comparison. They are:

- (1) family involvement: the degree to which a person is identified psychologically with family (i.e., spouse and parent) roles, the importance of the family to the person's self image and self-concept and the individual's commitment to family roles (Yogev and Brett 1985);

- (2) family expectations: perceived pressures on an individual to spend more time on family roles (Cooke and Rousseau 1984);
- (3) marital satisfaction: an effective feeling by an individual on how happy or satisfied he/she is with their spouse (Quinn and Staines 1979);
- (4) total time spent per week in home chores; and
- (5) total time spent per week responsible for child care.

Beach noted that individuals who are more involved with their families are more likely to select homework to help them meet the unpredictable demands of family life. In a similar vein, Dickerson and Gentry (1983) found that home computer adopters were more oriented to their home and to everyday home activities.

Role expectations are defined as perceived pressures on an individual to assume increased role responsibilities (Cooke and Rousseau 1984). The literature suggests that career individuals with high family role expectations (i.e., greater responsibility for child care, home chores) will be attracted to SWAH because the increased work time and work location flexibility associated with the work style makes it easier for them to satisfy high work and family demands simultaneously by performing overflow work in the family domain (Leider 1988; Portner 1983).

Telecommuting is also sometimes seen as decreasing family satisfaction. Increasingly, couples find themselves tangled in domestic conflicts involving the computer and its effects as it becomes a part of everyday life (Rossman 1983). Marriage counsellors are now addressing difficulties in developing and maintaining relationships among those who are using computers in the home. Some complaints that have surfaced include an obsessiveness with work, the emergence of the "computer widow" and a reduced time commitment to spouse and parent roles (Rossman 1983). There have been no studies which have linked marital satisfaction to SWAH for professional employees.

The majority of the research done with respect to the impact of homework on the family environment deals with time spent in child care and home chores. Huws, Korte, and Robinson (1990) note that while precise quantification is quite difficult, it is apparent that a substantial proportion of telecommuters have adopted this form of work because of their child care responsibilities. In many cases, the motivation is a straightforward desire to spend more time with children. In a recent survey by Antanoff (1985, pg. 89), a largely male sample indicated that "wanting closer ties with one's

children" was one of their primary reasons for working at home. Antanoff's results have been corroborated by Olson and Primps (1984).

The relationship between home chores and SWAH is currently unknown. It is, however, not unreasonable to expect that individuals who select to perform SWAH spend less time per week in home chores. There are only a limited number of hours in a day. If, as suggested in the literature (Kraut 1987; Olson 1985; Vitalari and Venkatesh 1989), individuals who perform SWAH spend more hours in work per week, yet still place a high priority on time spent with their children (Huws, Korte and Robinson 1990; Antanoff 1985), then it only stands to reason that less hours will be available for housework.

### 3. METHODOLOGY

#### 3.1 Respondents

Many individual, organizational and social factors may have an impact on the decision to perform SWAH. To minimize the influence of non-measured confounds and to make the population as homogeneous as possible, the sample was limited to males and females who met the following criteria. They had to be married, managers and/or professionals who used a computer in their job, parents, and have a spouse who either had a full-time managerial and/or professional job outside the home ("Dual-Career") or was a full-time homemaker ("Traditional").

To make the comparison between people who performed SWAH to those who did not more equitable and eliminate those situations where individuals could not perform SWAH due to lack of resources, we restricted the sample to individuals who worked for companies that had some form of arrangement whereby the organization provided their employees with computers that could be used for SWAH. Three-quarters of the participating organizations were willing to purchase home computers for all sampled employees. The other companies had implemented a check-out system whereby the employee was permitted to take company computers home for an indefinite period of time.

It should be noted that while the organization made it possible for all individuals in the sample to acquire a computer for after hours work-at-home, only half the respondents availed themselves of this opportunity. The other 50% of the sample elected not to bring a computer into their home.

A judgment sample of individuals who met the selection criteria was obtained by contacting large Canadian or-

ganizations in the private sector. Of the twenty-one organizations contacted nineteen agreed to participate in the study. Once an organization agreed to participate, a contact person within the organization was appointed to compile a list of individuals who met our selection criteria. The contact people distributed the questionnaire to individuals on their list. The responses were sent directly back to us. For reasons of confidentiality, the surveyed individuals were anonymous.

Questionnaires were distributed to 1,500 individuals; 748 were returned for a response rate of slightly under 50%. Of these 748 questionnaires, 628 were usable for the purposes of the present study. The primary reason for eliminating a questionnaire was that the respondents did not meet our selection criteria.

### 3.2 Instrument

The fourteen page survey instrument consisted of 135 questions. All of the constructs examined in this study were operationalized using standard five point Likert scales from the literature. High scores indicate that the respondent perceived themselves to be high on the construct in question.

Work environment constructs were operationalized as follows: Scales for Task Variety, Task Autonomy, Role Clarity, Work Involvement and Job Satisfaction were obtained from the Quality of Employment Survey (Quinn and Staines 1979). Work expectations were operationalized using a scale from Cooke and Rousseau (1984).

Family environment constructs were operationalized as follows: Family Involvement A, Family Expectations and Marital Satisfaction were operationalized using measures in Quinn and Staines. A second measure of family involvement (Family Involvement B) was taken from Palisi's (1984) Marriage Companionship and Marriage Well-being Scale.

Time data were collected using the methodology outlined in Bohlen and Viveros-Long (1981). Respondents were asked to think back to an average work week and indicate approximately how many hours a day they spent, on average, in the following activities: (1) working (defined as all activities related to paid employment) at the office, (2) working at home, (3) performing home chores, (4) engaged in activities with their children, and (5) involved in leisure and recreational activities. Data were collected for work and non-work days.

SWAH was measured by asking: "On average, how many hours a week do you spend performing work-related tasks at home on a computer?" Respondents were also asked

to indicate the extent to which they agreed or disagreed with the following statements regarding their motivation for selecting SWAH.

I choose to perform job-related work on a computer at home outside of regular office hours because:

- it gives me more control over my job
- it improves my job performance
- it allows me to be more creative
- it makes my job more interesting
- it gives me faster turnaround on my work
- I am encouraged to by boss
- I am encouraged to by my spouse because it reduces overtime at the office
- it helps me to balance conflicting work and family demands

### 3.3 Data Analysis

MANOVA was used to examine the research questions. MANOVA works by identifying a "discriminant function" consisting of a weighted sum of the variables that maximally discriminates between the groups in questions. Multivariate significance was tested using Hotelling's  $T^2$ . Several follow-up techniques (described below) were used in this analysis to determine how individual variables contributed to a significant MANOVA test.

#### 3.3.1 Univariate Follow-up Analysis

As suggested by Huberty and Morris (1989), a univariate follow-up analysis consisting of individual t-tests was done for those comparisons exhibiting multivariate significance to determine which individual variables differed across groups. To avoid spurious declarations of significance, the Bonferroni inequality (Stevens 1986, pp. 7-9) was used to ensure that the overall Type I error for all univariate procedures was not greater than the preset value for the parent multivariate test (5% in all cases).

#### 3.3.2 Descriptive Discriminant Analysis

Descriptive discriminant analysis (DDA) is a set of techniques designed to provide insights into the role and contribution of individual variables to the multivariate group discrimination (Huberty and Morris 1989). DDA enables one to identify the subset of non-redundant variables that together account for the significant discrimination and to rank the individual variables according to their contribution to the discrimination.

Thomas (1990) describes a method for identifying the important variables defining a discriminant function which is based on the examination of "parallel discriminant ratio

coefficients" (DRCs). Parallel DRCs are equal to the product of the standardized discriminant coefficient weights (SDF) and the correlations between dependent and canonical variables (CORR) for each individual variable. Parallel DRCs are also natural measures of variable "importance" in discrimination as they sum to one for each discriminant function.

#### 4. RESULTS

The results are presented in four stages: (1) description of the sample, (2) multivariate tests of the research questions, (3) univariate follow-up of the significant multivariate findings, and (4) DDA of the research questions.

##### 4.1 Description of the Sample

The sample consists of 204 (32.5%) dual-career males (DCM), 147 (23.4%) traditional males (TM), and 276 (43.9%) dual-career females (DCW). Overall, 49.5% of the sample performed SWAH: 60% (n=123) of the DCM, 69% (n=101) of the TM, and 32% (n=87) of the DCW selected to perform SWAH. Non-response of family environment questions reduced the sample sizes slightly for the family analysis. This non-response may have occurred because some respondents considered the family questions to be too personal for a survey which was administered at work.

Demographically, the samples were not statistically different. Average age of the DCM was 36 years, compared to 35 years for TM, and 33 years for DCW. DCM had been married an average of 13.9 years, compared to 13.2 years for TM, and 12.1 years for DCW. All respondents had some university training.

The groups were also statistically similar with respect to employment characteristics. All respondents were managers or professionals in computer intensive industries. All performed jobs that required use of a computer. TM had an average of 4.9 people reporting to them while DCM had an average of 5.2 and DCW had an average of 4.7. Of the sample, 26% were in the telecommunications/computer industry, 15% worked for accounting/consulting firms, 25% worked in the public sector, and 34% worked in the financial sector.

Statistical tests (see Duxbury, Mills and Higgins 1990) indicated that age and number of children were not significantly different across the six groups. Family size averaged 1.6 children for DCM, 1.8 children for TM and 1.5 children for DCW. Average child age was 6.1 years

for DCM respondents, 5.2 years for TM, and 7.4 years for the DCW respondents.

Table 1 provides a summary for each of the six groups of the mean total number of hours per week spent (1) working at the office, (2) performing SWAH, (3) performing non-computer related work at home (4) working at home (calculated as the sum of 2 and 3), and (5) working (calculated as the sum of 1 and 4). Statistical analysis (see Duxbury, Mills and Higgins 1990) indicated that there were no significant differences between DCM, DCW and TM who perform SWAH with respect to (1) the total number of hours worked per week, (2) the total number hours worked at home, and (3) the total number of hours of SWAH performed each week.

Similarly, there were no significant differences between DCM, DCW, and TM who did not perform SWAH with respect to the total number of overtime hours worked at home or between DCM and DCW who did not perform SWAH with respect to the total number of hours worked each week. TM who did not perform SWAH worked significantly more hours per week than did their dual-career cohorts. These extra hours were performed at the office location rather than at home.

The total number of hours worked per week and the total number of hours worked per week at home was significantly higher for individuals who performed SWAH than for individuals who did not. These findings are independent of gender or, for male respondents, whether one's wife has full-time career employment outside the home (i.e., maternal employment status). Although most of the additional work hours reported by individuals who selected SWAH were performed at home on the computer after office hours, these men and women also worked approximately twice as many non-computer related overtime hours at home as individuals who did not adopt SWAH.

Table 1 also provides a summary of the mean number of hours spent responsible for child care per week. The data indicate that number of hours spent in child care per week is dependent upon gender and maternal employment status but not performance of SWAH. DCW spent significantly more hours per week in child care than did either group of men. DCM spent significantly more time in child care per week than did TM.

Table 2 provides information on why individuals select to perform SWAH (for a complete discussion of this data, see Duxbury and Higgins 1990). Dual-career individuals are motivated to use SWAH because they perceive that it allows them to increase their work productivity (improve job performance, provide faster turnaround) while simul-

taneously allowing them to balance work and family. TM are motivated to use SWAH because of their perception that it will increase their work productivity (increase job performance, creativity, turnaround).

#### 4.2 Multivariate Tests of the Research Questions

The results of the multivariate tests of each of the research questions are provided in Table 3. Multivariate analysis indicates that

- (1) the work environments of DCM, DCW, and TM who selected to perform SWAH were significantly different from the work environments of their cohorts who did not adopt SWAH

- (2) the family environments of DCW who adopted SWAH were significantly different from the family environments of DCW who did not, and

- (3) there were no significant differences between the family environments of DCM and TM who adopted SWAH and those who did not.

#### 4.3 Univariate Follow-up of Significant Multivariate Findings

The means and standard deviations for the sixteen variables included in the analysis are given in Table 4 for each of the six sample groups. The results of the univariate follow-up of the significant multivariate findings are given in Table 5.

Table 1. Mean Measures of Time

	DUAL-CAREER MEN		DUAL-CAREER WOMEN		TRADITIONAL MEN	
	SWAH (n=123)	NO SWAH (n=81)	SWAH (n=87)	NO SWAH (n=187)	SWAH (n=100)	NO SWAH (n=47)
Total hours worked/week at office	38.80	39.85	37.85	39.00	40.25	42.75
Total hours worked/week SWAH	4.33	NA	4.77	NA	4.66	NA
Total hours worked/week at home no SWAH	2.07	0.95	1.93	0.95	1.50	0.70
Total hours worked/week at home (SWAH + no SWAH)	6.40	0.95	6.70	0.95	6.20	0.70
Total hours worked/week (office + home)	45.20	40.80	44.55	39.95	46.45	43.45
Total hrs/week responsible for child care	4.55	4.53	9.44	9.26	6.50	6.12
Total hrs/week committed	49.75	45.33	53.99	49.21	52.85	49.57

**Table 2. Why Respondents Perform SWAH**

	DUAL-CAREER MEN (n = 123)		DUAL-CAREER WOMEN (n = 87)		TRADITIONAL MEN (n = 101)		SIGNIF. (*p<.05)
	Mean	Std.D.	Mean	Std.D.	Mean	Std.D.	
Control over job	3.31	1.27	3.09	1.31	3.28	1.29	ns
Job performance	3.54	1.24	3.45	1.27	3.69	1.22	ns
Creativity	3.36	1.19	3.13	1.22	3.38	1.25	ns
Job more interesting	3.11	1.13	2.97	1.11	2.94	1.17	ns
Faster turnaround	3.78	1.17	3.89	1.21	3.79	1.17	ns
Encouraged by boss	2.70	1.19	2.60	1.27	2.70	1.24	ns
Encouraged by spouse	3.00	1.26	2.54	1.36	2.98	1.31	*2 different from 1 and 3
Helps balance work and family	3.66	1.19	3.76	1.22	3.28	1.17	*3 different from 1 and 2

Key: Dual-Career Men = 1  
 Dual-Career Women = 2  
 Traditional Men = 3

The univariate data indicate that

- (1) TM who adopted SWAH had significantly less role clarity than TM who did not adopt SWAH,
- (2) there were no significant differences between DCM who adopted SWAH and DCM who did not, and
- (3) DCW who adopted SWAH worked significantly more hours per week, had significantly greater task variety and work expectations and significantly lower work role clarity and family expectations than career women who did not adopt SWAH.

**4.4 Descriptive Discriminant Analysis**

The follow-up DDA relating to Q1 is shown in Table 6. As with univariate follow-up analysis, only those multivariate comparisons declared significant at the 5% level were explored. The three discriminant functions relating to Q1 are primarily functions of three of the seven work characteristics: role clarity, work expectations and hours per week worked. From the signs of the SDF's of these three variables, it is evident that an individual will score high on the relevant discriminant function if he or she scores low in role clarity, high in work expectations, and high in hours per week worked. The three discriminant functions can thus be characterized as a "job level" construct. The group means listed in Table 4 show that men and women who adopt SWAH score higher on "job level" than men and women who do not adopt SWAH.

**5. DISCUSSION**

The discussion is divided into two main sections. The first deals with findings regarding work characteristics which encourage or discourage the adoption of SWAH. The second section provides a similar analysis with respect to family environment factors.

Thomas's (1990) methodology indicates that role clarity is the overall most important discriminator of the seven work characteristics included in the analysis. The relative importance of the other discriminators appears to be associated with gender and maternal employment status. Work expectations and hours worked per week tie as the second most important discriminators for both groups of men (DCM, TM). While hours worked per week was also the second most important discriminator for DCW, work expectations were only marginally important (tied in importance with task variety, a variable that does not contribute to the discrimination in the case of men).

DDA relating to Q2 is shown in Table 7. Two of the six family characteristic variables included in the analysis were able to act together to discriminate between the family environments of DCW who used SWAH and those who did not: family expectations and family involvement. The discriminant function in this case can be characterized as a "perceived family responsibility" construct. Inspection of Table 4 reveals that women who adopt SWAH score lower on "perceived family responsibility" than do those who do not adopt SWAH.



**Table 3. Multivariate Tests of Research Questions**

QUESTION	COMPARISON	T <sup>2</sup>	F	(d.f.)	p-Value
Q1: Work Environment	DCM SWAH/DCM No SWAH	.961	2.01	(7, 194)	.05*
	DCW SWAH/DCW No SWAH	.234	9.80	(7, 265)	.001*
	TM SWAH/TM No SWAH	.117	2.33	(7, 139)	.02*
Q2: Family Environment	DCM SWAH/DCM No SWAH	.041	1.27	(6, 186)	.28
	DCW SWAH/DCW No SWAH	.078	2.55	(6, 216)	.02*
	TM SWAH/TM No SWAH	.005	0.10	(6, 116)	.99

**Table 4. Means and Standard Deviations**

Group Number	TRADITIONAL MEN				DUAL-CAREER MEN				DUAL-CAREER WOMEN			
	NO SWAH		SWAH		NO SWAH		SWAH		NO SWAH		SWAH	
	1	2	3	4	5	6						
	X	SD	S	SD	X	SD	X	SD	X	SD	X	SD
<b>1. Work Environment</b>												
Task Variety	4.54	.45	4.63	.41	4.48	.60	4.54	.57	4.19	.76	4.55	.60
Autonomy	3.61	.84	3.67	.82	3.31	.86	3.46	.77	3.04	.93	3.28	.96
Role Clarity	3.25	.84	2.88	.82	3.28	.84	3.02	.87	3.76	.86	3.16	.96
Work Inv.	3.65	.50	3.73	.37	3.70	.36	3.76	.33	3.66	.35	3.76	.32
Work Exp.	3.04	.99	3.40	.83	3.08	.94	3.37	.82	2.63	.99	3.18	.98
Job Sat.	2.23	.70	2.37	.86	2.31	.79	2.36	.74	2.42	.75	2.36	.76
Hrs. Worked per Week	43.45	6.41	46.45	8.22	40.80	7.66	45.20	6.22	39.95	7.01	44.55	9.72
<b>2. Family Environment</b>												
Family Inv. A.	3.82	.68	3.87	.67	3.82	.70	3.62	.76	3.91	.72	3.63	.91
Family Inv. B.	3.03	.58	3.08	.67	3.14	.58	2.98	.60	3.09	.64	3.03	.68
Marital Sat.	4.69	.73	4.74	.67	4.49	.81	4.51	.76	4.47	.85	4.55	.68
Family Exp.	2.56	.42	2.23	.50	2.65	.64	2.53	.64	3.40	.60	3.08	.98
Hrs. Home Chores/Wk.	4.94	3.30	4.87	2.45	5.13	2.53	4.89	2.16	6.60	2.92	6.05	2.78
Hrs. Child Care/Wk.	4.53	3.01	4.55	2.55	6.12	2.82	6.40	2.55	9.29	4.61	9.44	4.50

There were no significant discriminant functions identified when the family environments of DCM with SWAH were compared to those of DCM without SWAH or when the family environments of TM with SWAH were compared to those of TM without SWAH.

**5.1 The Work Environment and the Adoption of SWAH**

The results from both the univariate and multivariate data analysis indicate that two aspects of an individual's work environment may encourage them to adopt SWAH:

high work expectations and low role clarity. People with high work expectations may be attracted to this work style because having a computer at home makes it easier for them to meet greater than average work expectations. Conversely, people with lower than average work expectations have less of a need to work outside of regular office hours and, hence, less of a demand for a computer at home. This interpretation of the data is consistent with the fact that the men and women in our sample indicated that the main reason that they performed SWAH was because it gave them faster turnaround of their work and increased their job performance.

**Table 5. Univariate Follow-up of Significant Multivariate Findings**

	GROUPS BEING COMPARED								
	TM SWAH/TM NO SWAH			DCM SWAH/DCM NO SWAH			DCW SWAH/DCW NO SWAH		
	t	(d.f)	p-value	t	(d.f)	p-value	t	(d.f)	p-value
<b>1. Work Environment Variables</b>									
Task Variety	-1.22	147	.223	-0.77	203	.443	-0.39	273	.000*
Autonomy	-0.42	147	.672	-1.22	203	.233	-2.14	273	.036
Role Clarity	2.79	147	.006*	2.21	203	.028	5.34	273	.000*
Work Inv.	-1.14	147	.256	-1.29	203	.200	-2.41	273	.017
Expectations	-2.34	147	.027	-2.20	203	.029	-3.98	273	.000*
Job Sat.	-1.01	147	.312	-0.45	203	.651	-0.69	273	.494
Hours Worked	-2.08	147	.039	-2.23	203	.027	-4.56	273	.000*
<b>2. Family Environment Variables</b>									
Family Inv. A.	—	—	—	—	—	—	2.23	223	.040
Family Inv. B.	—	—	—	—	—	—	0.73	223	.468
Marital Sat.	—	—	—	—	—	—	-0.79	223	.429
Family Exp.	—	—	—	—	—	—	2.80	223	.005*
Time/Chores	—	—	—	—	—	—	1.39	223	.166
Time/Child care	—	—	—	—	—	—	-0.06	223	.948

NOTES: Bonferroni's Inequality was used to avoid the probability of spurious results. Results were tested for significance (\*) as follows:

Work Environment	=	.05/7	=	.007
Family Environment	=	.05/6	=	.008
Outcomes	=	.05/3	=	.02

Multivariate significance was a necessary precondition for univariate comparisons between groups. (-) indicates the comparison was not performed.

DCM, DCW and TM with lower role clarity were also significantly more likely to select to perform SWAH. Individuals who hold jobs with lower role clarity can be expected to have to perform more non-routine tasks that require their undivided attention than people with greater role clarity. Such tasks are better done in an environment with fewer interruptions to distract one from the job at hand. It would appear that the DCM, TM and DCW in our sample who adopt SWAH perceive the home setting to be such an environment. This interpretation of the data is consistent with work done by Kraut (1987, 1989) and AT&T (1982).

The fact that DCM and TM find the home a "distraction free" environment to work in is not surprising given that men have sequential work and family demands (Pleck 1977) and a work-family interface which gives priority to work over family demands (Hall and Richter 1988). That DCW also prefer to do non-routine tasks at home was an unexpected finding given that women have traditionally been expected to give family demands priority (Hall and

Richter 1988) and perform their work and family demands simultaneously (Pleck 1977). It may be that women who select to perform SWAH use the computer to juggle work and family demands and perform employment related activities when their family responsibilities have been satisfied (i.e., perform their after hours work after the children have gone to bed).

Both multivariate and univariate data analysis show that people who perform SWAH work significantly more hours per week and more hours at home than those who do not adopt SWAH. This increase may reflect an increased need to work longer hours, an increased ability to work longer hours with minimum family disruption, or both. Either way, the results make intuitive sense. Individuals who have a greater number of work pressures on them (high work expectations, low role clarity) are likely to both want to and have to spend a greater number of hours working each week. It seems that having a computer at home allows them to choose the locale where they would prefer to do this work.

**Table 6. Descriptive Discriminant Analysis for Research Question One**

**1. DCM With SWAH Versus DCM With No SWAH**

Hotelings  $T^2 = .961$ ,  $F(7, 194) = 2.01$ ,  $p\text{-value} = .05$

Variable	Univariate Significance	SDF	CORR	DRC	Multivariate Discriminator	Importance Ranking
Task Variety	No	-.128	.186	-.024	No	
Autonomy	No	.336	.312	.104	No	
Role Clarity	No	-.554	-.582	.322	Yes	1
Work Inv.	No	.100	.325	.033	No	
Work Expec.	No	.481	.629	.303	Yes	1
Job Sat.	No	-.187	.115	-.022	No	
Hours Worked	No	.440	.644	.283	Yes	1

**2. DCW With SWAH Versus DCW With No SWAH**

Hotelings  $T^2 = .243$ ,  $F(7, 265) = 9.80$ ,  $p\text{-value} = .001$

Variable	Univariate Significance	SDF	CORR	DRC	Multivariate Discriminator	Importance Ranking
Task Variety	Yes	.285	.473	.135	Yes	3
Autonomy	No	.104	.232	.024	No	
Role Clarity	Yes	-.670	-.636	.430	Yes	1
Work Inv.	No	.101	.300	.030	No	
Work Expec.	Yes	.304	.480	.136	Yes	3
Job Sat.	No	-.155	-.078	.012	No	
Hours Worked	Yes	.369	.613	.226	Yes	2

**3. TM With SWAH Versus TM With No SWAH**

Hotelings  $T^2 = .117$ ,  $F(7, 139) = 2.33$ ,  $p\text{-value} = .02$

Variable	Univariate Significance	SDF	CORR	DRC	Multivariate Discriminator	Importance Ranking
Task Variety	No	.290	.305	.088	No	
Autonomy	No	-.107	.105	-.011	No	
Role Clarity	Yes	-.692	-.676	.470	Yes	1
Work Inv.	No	.014	.267	.004	No	
Work Expec.	No	.382	.526	.200	Yes	2
Job Sat.	No	.141	.219	.031	No	
Hours Worked	No	.429	.517	.218	Yes	2

Where SDF = Standardized Discriminant Function Coefficient  
 CORR = Correlation Between Dependent and Canonical Variables  
 DRC = Discriminant Ratio Coefficient

**Table 7. Descriptive Discriminant Analysis for Research Question Two**

**1. DCM With SWAH Versus DCM With No SWAH**

Hotelings  $T^2 = .041$ ,  $F(6, 186) = 1.265$ ,  $p\text{-value} = .28$

**2. DCW With SWAH Versus DCW With No SWAH**

Hotelings  $T^2 = .078$ ,  $F(6, 216) = 2.549$ ,  $p\text{-value} = .02$

Variable	Univariate Significance	SDF	CORR	DRC	Multivariate Discriminator	Importance Ranking
Involvement A	No	.673	.593	.400	Yes	2
Involvement B	No	-.057	.152	-.009	No	
Marital Sat.	No	-.179	-.168	.030	No	
Family Expec.	Yes	.803	.724	.582	Yes	1
Time/Chores	No	.002	.381	.002	No	
Time/Child care	No	.169	-.015	-.002	No	

**3. TM With SWAH Versus TM With No SWAH**

Hotelings  $T = .005$ ,  $F(6, 116) = 0.104$ ,  $p\text{-value} = .99$

Where SDF = Standardized Discriminant Function Coefficient  
 CORR = Correlation Between Dependent and Canonical Variables  
 DRC = Discriminant Ratio Coefficient

**5.2 The Family Environment and the Adoption of SWAH**

The results from both the univariate and multivariate data analysis indicate that while there were no significant differences in the family environments of men (DCM and TM) who did and did not adopt SWAH, perceived family responsibility (i.e., family involvement, family expectations) was associated with a woman's tendency to adopt SWAH. DCW with lower perceived family responsibilities were significantly more likely to adopt SWAH than were other DCW. This result suggests that only women who perceive their family responsibilities to be less demanding are likely to consider SWAH to be a feasible work alternative.

There are several possible explanations for these findings. First, it is possible that DCW who are less psychologically involved with their families or have fewer family expectations are more able to separate work and family domains (i.e., reduced work-family boundary permeability) even when work is done at home. In other words, a reduction in family responsibilities will lower the likelihood that women will let their spouse and/or children distract them from work. Second, it is also possible that the lower

family expectations are a result of a supportive dual-career spouse. Intuitively, it makes sense that having a spouse who is willing to take over family responsibilities so that one can perform work from home would encourage adoption of the SWAH work style. Finally, it is also possible that DCW who are less involved with their families bring work home to minimize family contact.

It should be noted that performing SWAH does not appear to affect the amount of time one devotes to child care or home chores. This finding is consistent with the contention that the increased work time and location flexibility offered by SWAH makes it easier for employees to work more hours without sacrificing time spent with the family (i.e., to integrate work and family demands).

It is also interesting to note that there were no significant differences in marital satisfaction between individuals who adopted SWAH and those who did not. This lack of a difference is surprising given the data indicating that employees who use this work arrangement spend significantly more time in work activities. It is also contrary to the view expressed in the popular literature (e.g., "computer widows"). There are several possible inter-

pretations of this data. First, people who perform overtime work at home are often more accessible to their families than individuals who work overtime at the office. This greater accessibility may offset marital dissatisfactions that are associated with increased time spent in the work role. It is equally likely that only those individuals whose spouses are less likely to experience discontent with work at home (i.e. place lower family expectations on their spouse) select the SWAH option. Finally, it is also possible that while the individual who performs SWAH is very satisfied with their marriage, their spouse (i.e., the "computer widow") is not.

## 6. CONCLUSIONS

Employees who adopt SWAH do so because they perceive that there is a match between their work needs and the work arrangement's capabilities. Individuals with higher level, more challenging jobs (i.e., greater work expectations and lower role clarity) are more likely to adopt SWAH than are individuals with fewer career demands. Such individuals have a greater need to spend more hours in uninterrupted work. Employees with lower work role clarity often have to work longer hours and concentrate more because they don't know what is expected of them. Individuals with greater work expectations need to spend more hours working to meet higher occupational role demands. This suggests that career individuals adopt SWAH because they perceive that it makes it easier for them to perform overflow work in the evenings or on weekends in an environment freer from distractions than the conventional office. This conclusion is consistent with the data indicating that employees who perform SWAH work significantly more hours per week and more hours at home per week and perceive that SWAH increases their job performance, gives them faster turnaround on their work and increases the amount of control they have over their job.

The decision to adopt SWAH also appears to be affected by socio-cultural role expectation. While family environment (as defined in this study) has no impact on a male career employee's decision on whether or not to adopt SWAH, it does appear to affect whether a career woman will select this workstyle. Career women with increased family responsibilities (i.e., greater family involvement, greater family expectations) are less likely to adopt SWAH than are career women with lower family responsibilities.

This finding is compatible with previous research which has found an asymmetrical boundary between work and family which is dependent upon gender (Hall and Richter 1988). Men have traditionally been expected to manage

their families so that their family responsibilities do not interfere with their work efficiency. This is consistent with the fact that they do not appear to consider family issues when deciding on whether or not to adopt SWAH. Women, on the other hand, have been socialized to give primacy to their family obligations. As such, they should be less likely to perform SWAH if they perceive that this work arrangement will have negative repercussions on their family. This could explain why the career women in our sample who are more involved with their family and have greater family expectations are significantly less likely to adopt SWAH.

Our results indicate that SWAH may provide several benefits to the companies that offer this work option as well as the employees who select to use it. Organizations which make it possible for employees to perform SWAH should profit from a more productive and creative work force. The literature also indicates that providing employees with increased control over their work demands is associated with reduced work stress, absenteeism and tardiness, and better mental and physical health (Karasek 1979). The increased ability to work from home should also provide employees who adopt SWAH with a competitive advantage over their colleagues who do not have a computer at home.

The data also implies that employees who adopt SWAH may be better able to fit work demands in around family responsibilities. Previous work examined the consequences of this work style (Duxbury and Mills 1989) and a critical examination of the present data suggest, however, that such a conclusion would be premature. While it is true that individuals who perform SWAH increase their work output with no concomitant decrease in time spent in family roles, it is also true that the total number of hours that they commit to work and family roles each week is significantly higher than that committed by individuals who do not adopt SWAH (see Table 1). Hours committed per week has consistently been linked to increased role overload, role interference and work-family conflict (Staines et al. 1978).

Findings from this study can be generalized to career parents who use computers in their job. More research is needed on both individuals who adopt SWAH and those who do not before valid conclusions can be drawn about the adoption of SWAH in the general population. Classification of people who perform SWAH by the use they make of this work arrangement (i.e., light, medium, and heavy users) and consideration of job and organizational differences is required to fully understand how people use their computers at home and why they perform SWAH. Future research should also be expanded to include non-professional employees of both genders

and individuals who have computers at home but do not perform SWAH. Finally, a better appreciation of the family factors that encourage or discourage the adoption of SWAH and the family consequences of this work arrangement could be gained if one examined the reactions of both the employee who performs SWAH and their spouse.

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