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**A STUDY OF FLEXITIME EFFECTS IN A
GOVERNMENT RESEARCH ORGANIZATION**

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This effort examined the effects of variable work hours upon employee attitudes and behavior in a large government research organization. Employees at experimental sites--where flexitime was implemented--were compared with those at matched (control) sites on attitudinal and behavioral measures taken before and after flexitime began. Results showed that flexitime is not related to improved employee attitudes and work behaviors, or to changes in perceptions of their work roles. Although

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subordinates were generally more favorable toward flexitime than supervisors, the views of both groups become more positive over time. Productivity did not change as a result of flexitime, but reduced use of sick leave resulted in a projected annual savings of nearly \$400,000.

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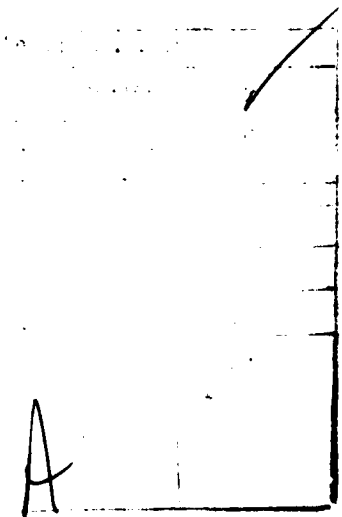
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FOREWORD

This research was conducted in support of the Independent Exploratory Development Program. The objective of this research was to determine how the implementation of flexitime affected employee attitudes and behavior within a large government research organization. Subsequent efforts will (1) determine whether employee subgroups (defined by age, education, etc.) have different attitudes toward flexitime, and (2) assess long-term effects of flexitime.

Appreciation is expressed to all U.S. Department of Agriculture participants in the study as well as to the NAVPERSRANDCEN personnel whose comments have helped guide the development of these reports.

RICHARD C. SORENSON
Director of Programs



SUMMARY

Problem

Recently, organizations in the U.S. and abroad have implemented variable work schedules, commonly known as flexitime. Flexitime allows employees some latitude in establishing starting and stopping times, and thus permits work schedules to "fit" the person to some extent.

Purpose

The purpose of this research was to examine the effects of flexitime on the attitudes and behaviors of employees in a large government research organization.

Approach

Surveys were distributed to employees at experimental and control sites about 1 month before and 6 months after the implementation of flexitime at experimental sites. Responses were used to compare experimental and control subjects on measures of job satisfaction, perceptions of supervisory behavior, and perceptions of role ambiguity and role conflict. Also, information was gathered on the scientific productivity, absenteeism, and turnover rates for employees at experimental and control sites. Finally, administrators at experimental sites were interviewed to determine how flexitime affected operating costs.

Findings

1. Both experimental and control respondents experienced slight increases in job satisfaction and perceived their supervisors as being more considerate and supportive. These were time effects, however, and cannot be attributed to flexitime.
2. Employees working on flexitime did not, as hypothesized, perceive their supervisors as initiating more group structure to compensate for reduced contact with their subordinates.
3. Subordinates initially held more favorable attitudes toward flexitime than did supervisors. Although both subgroups developed more favorable attitudes toward flexitime during the study, supervisors remained less supportive of flexitime than did subordinates.
4. Productivity and turnover rates did not change due to flexitime. Operational costs increased very slightly as a result of higher utility costs.
5. Absenteeism decreased, resulting in projected annual savings of nearly \$400,000, because employees used slightly more annual leave but considerably less sick leave.

Conclusions

1. Although the effects of flexitime may vary across organizational levels and subgroups, it appears that positive changes in attitudes toward flexitime and behaviors can follow a flexitime program.
2. Implementing flexitime may increase energy consumption slightly at some facilities, but it could substantially reduce absenteeism and provide a net savings in organizational costs.

Recommendations

1. Flexitime's success will depend upon its acceptance at several organizational levels. Consequently, facilities planning to implement it should explain its potential benefits to supervisors and develop a method of recordkeeping that is best suited to the organization.

2. Future studies of flexitime should use more sensitive measures of productivity, extend the length of measurement to a year or more, and carefully match control and experimental groups.

CONTENTS

	Page
INTRODUCTION	1
Problem	1
Purpose	1
Background	1
METHOD	2
Sample	2
Attitudinal/Behavioral Measures	2
Survey Administration	2
Archival Search.	3
Interviews	3
Flexitime Parameters	3
Hypotheses.	4
Analyses.	4
RESULTS	4
Survey Data	4
Response Rate	4
Attitudinal Measures	5
Archival Search.	5
Scientific Productivity.	5
Absenteeism	5
Turnover.	9
Interviews	10
DISCUSSION AND CONCLUSIONS	10
Attitudinal Measures	10
Behavioral Measures.	10
RECOMMENDATIONS.	11
REFERENCES	12
APPENDIX A--VARIABLE WORK SCHEDULE SURVEY	A-0
APPENDIX B--WORK ATTITUDE SURVEY.	B-0
DISTRIBUTION LIST	

LIST OF TABLES

	Page
1. Survey Response Rates	5
2. Attitudinal Measures for Experimental and Control Respondents Taken Before and After Flexitime	6
3. Attitudes of Supervisors and Nonsupervisors Toward Flexitime Before and After Implementation	7
4. Comparisons of Absenteeism and Turnover Rates for Experimental and Control Groups	9

INTRODUCTION

Problem

Recently, organizations in the U.S. and abroad have implemented variable work schedules, commonly known as flexitime. Flexitime allows employees some latitude in establishing starting and stopping times, and thus permits work schedules to "fit" the person to some extent. Predictably, some organizations have implemented flexitime without having access to empirical evidence of its possible effects.

Purpose

The purpose of this research was to examine the effects of flexitime on the attitude and behavior of employees in a large government research organization.

Background

Despite the popularity of flexitime and the many efforts to implement it, there have been few empirical studies of its effects. Golembiewski and Proehl (1978) reviewed 16 studies of flexitime and concluded that most of them can be characterized as "anecdotal and impressionistic" (p. 838). Further, they noted that these studies are susceptible to criticism for the following reasons:

1. Few used control groups.
2. Few examined flexitime's effects over substantial periods of time.
3. Many of them, particularly those with no control groups, examined employees only after they had worked under flexitime, and thus could not assess attitudinal or behavioral changes.
4. In most cases, results were biased by inadequate sampling of employees.
5. Most used unconventional research measures of questionable psychometric strength.
6. None compared flexitime's effects on union and nonunion employees.
7. Most emphasized flexitime's effect on employees' attitudes and paid little attention to its effect on their behavior.
8. Few subjected results to statistical analysis.

Also, since flexitime means different things to different people, Golembiewski and Proehl suggested that, in any further research on this topic, study parameters (i.e., length of workweek, schedule variability) should be carefully specified.

METHOD

Sample

The effort was conducted within a government organization scheduled to implement flexitime on an experimental basis. Experimental and control sites were selected by identifying the organization's facilities across the country and matching those in each region that performed the same type of work (e.g., research or administration) and had roughly the same number of employees. Several experimental and control sites were chosen randomly in each region.

Attitudinal/Behavioral Measures

Attitudinal and behavioral measures were gathered through survey questionnaires, archival search, and interviews.

Survey Administration

Two survey forms were developed. The survey to be distributed at the experimental sites was entitled "Variable Work Schedule Survey"; and that to be distributed at the control sites, "Work Attitude Survey" (see Appendices A and B). The two questionnaires were identical, except that the former included items on flexitime (see 5 below). Survey items covered the following topics:

1. Job Satisfaction--The short form of the Minnesota Satisfaction Questionnaire (Weiss, Dawis, England, and Lofquist, 1967) was used to assess the employee's satisfaction with specific aspects of his present job (Items 1-20, A-2, B-2).

2. Supervisory Behavior--The recently revised initiating structure and consideration subscales (Schriesheim, 1976) were used to assess the employee's perceptions of his immediate supervisor's behavior in these areas (Items 21-42; A-2, B-2). Initiating structure (IS) was defined as the supervisor's tendency to let subordinates know what is expected of them; and consideration, as a measure of behavior regarding subordinates' comforts, well-being, status, and contributions (Stogdill, 1963).

3. Role Perception--Fourteen items developed by Rizzo, House, and Lirtzman (1970) were used to assess measures of role ambiguity (i.e., how well subjects thought they understood what was expected of them on the job) and role conflict (i.e., whether subject felt they had to contend with conflicting pressures to get their jobs done) (Items 43-56; A-2, B-2).

4. Biographical Data--Five biographical items were included to determine the employee's pay category (roughly a "white collar" vs. "blue collar" distinction), pay grade, education, age, sex, and supervisory status (Items 25-30; A-4, B-3). These data were collected for use in determining how flexitime affected various employee subgroups.

5. Flexitime Data--Twenty-four items (1-24, A-3) were included in the Variable Work Schedule Survey to determine how employees thought flexitime would affect such activities as work scheduling, absenteeism, and recordkeeping.

Survey forms were distributed to employees at experimental and control sites approximately 1 month before and 6 months after flexitime was implemented at the experimental sites. The preflexitime and postflexitime surveys were identical, except that, in the postflexitime survey distributed at experimental sites, questions referring to flexitime were rephrased to assess employees' retrospective views.

Archival Search

Scientific Productivity. Since subjects worked for a research organization, the number of scientific publications submitted to the organization's technical editing staff during the 6-month periods before and after flexitime began was used as a measure of productivity. Any change would not only be important in its own right, but would also indicate that the performance of support personnel (e.g., clerks, administrators) had improved.

Absenteeism. To measure flexitime's effect on absenteeism, the number of sick leave and annual leave hours taken by employees of experimental and control sites during the 6-month periods preceding and following flexitime were determined. To adjust for possible seasonal effects, figures for similar yearly periods before and after flexitime were compared.

Turnover. Turnover rates for the experimental and control groups were monitored throughout the study. Seasonal adjustments similar to those for absenteeism were made.

Interviews

Administrative officials at experimental sites were interviewed to determine how procedural changes resulting from flexitime had affected operating costs for such services as utilities, security, and fire protection.

Flexitime Parameters

1. Band Width--Employees were required to begin and end their work days within a 10-hour band width--from 0700 to 1700 (determined from preferences expressed by experimental site respondents--preflexitime survey).
2. Core Hours. Employees were required to work 8 hours each day and be present during core hours that extended from 2 hours after the earliest starting time (0900) to 2 hours before the latest stopping time (1500).
3. Flexible Hours. Employees' begin-working time could range from 0700 (2 hours before core time began) to 0900. Their stopping time would be adjusted accordingly.
4. Length of Workweek. Full-time employees worked a 40-hour week.
5. Banking. Employees were not allowed to alter the length of their workweek by carrying forward ("banking") hours worked in excess of the required weekly amount. Regulations required them to work a 40-hour week consisting of 5 8-hour days.
6. Variability of Employees' Schedules. Employees were expected to obtain supervisory approval before changing flexitime hours. No minimum commitment of time was set for each flexitime change requested.
7. Supervisor's Role. Supervisors had authority to approve variable work schedules and to return their subordinates to regular schedules if organizational needs were not being met.

Hypotheses

It was hypothesized that flexitime would have the following effects:

1. Employees would experience greater job satisfaction because they would have more control over their work environment.
2. Subordinates would perceive their supervisors as initiating more structure and as being more considerate to compensate for reduced contact between the two groups.
3. In attempting to forestall problems that could arise in their absence, supervisors would clarify their subordinates' work roles. Consequently, subordinates would know what their supervisors expect of them and experience less role ambiguity.
4. Subordinates would experience less role conflict because supervisors would attempt to reduce conflicting directions when supervisory duties are shared.
5. Although supervisors initially would be less positive toward flexitime than their subordinates, their views would gradually become more positive. Nevertheless, they would remain less supportive of flexitime than their subordinates, primarily because flexitime makes their assigned duties more difficult.

Analyses

1. The first four hypotheses were tested by using a multivariate analysis of variance (MANOVA) to compare experimental and control respondents on measures of job satisfaction, supervisory behavior (initiating structure and consideration), and role perception (conflict and ambiguity) taken before and after the implementation of flexitime. The fifth hypothesis was tested by using a MANOVA to compare attitudes of supervisors and nonsupervisors toward flexitime before and after it was implemented.

2. Employees of experimental and control sites were compared on measures of scientific productivity (using a two-way analysis of variance), absenteeism, and turnover.

RESULTS

Survey Data

Response Rate

As shown in Table 1, preflexitime surveys were distributed to 1345 employees at experimental sites, and to 1219 employees at control sites. Of these, 767 (57%) and 670 (55%) respectively responded. Postflexitime surveys were distributed to 622 experimental subjects and to 919 control subjects, and 367 (59%) and 478 (52%) responded. Respondents remained anonymous.

Fewer postflexitime surveys were distributed because of a clerical error at one of the experimental sites. To compensate for this error, data for the matching control site were not included in the analyses. The effects of the reduced sample size could not be determined.

Table 1
Survey Response Rates

Survey	Experimental Subjects			Control Subjects		
	Number Contacted	Number Who Responded	Response Rate (%)	Number Contacted	Number Who Responded	Response Rate (%)
Preflexitime	1345	767	57	1219	670	55
Postflexitime	622	367	59	919	478	52

Attitudinal Measures

In hypotheses 1 through 4, it was predicted that implementation of flexitime at experimental sites would result in increased job satisfaction, more initiating structure and consideration on the part of supervisors, and decreased role ambiguity and role conflict on the part of subordinates. As shown in Table 2, survey results did not support these hypotheses. There is a significant time effect, however, at the .05 level, for job satisfaction and supervisory behavior measures, for both experimental and control respondents.

In hypothesis 5, it was predicted that nonsupervisors would show more positive attitudes toward flexitime than would supervisors. As shown in Table 3, this hypothesis was supported. In nearly all instances, nonsupervisors were more positive, and the attitudes of both groups became more positive over time. For the majority of items, the effects of group and time are significant. The effects are not consistent, however. For group, the smallest effect was found for absenteeism; and the largest, for overall opinion. For time, the smallest effect was for work assignments and cooperation within unit; and the largest, for recordkeeping for time and attendance purposes. The lack of a significant interaction (G x T) effect indicates that group and time effects are operating independently.

Archival Search

Scientific Productivity

The results of the ANOVA of the mean numbers of manuscripts submitted before and after flexitime began revealed no significant main effects or an interaction of these effects. It appears that no change in productivity occurred over time for either group.

Absenteeism

As shown in Table 4, experimental subjects took approximately the same number of annual leave hours as control subjects before flexitime began but they took significantly more annual leave afterwards. The reverse was true for sick leave hours: Experimental subjects used significantly more sick leave than control subjects before flexitime began and approximately the same amount afterwards.

Table 2
Attitudinal Measures for Experimental and Control
Respondents Taken Before and After Flexitime

Measure	Respondents ^a			
	Experimental		Control	
	M	S.D.	M	S.D.
Job Satisfaction^b				
Preflexitime	73.7	11.1	72.7	11.3
Postflexitime	74.9	10.5	73.4	11.9
Supervisory Behavior:^c				
Initiating Structure				
Preflexitime	36.7	9.8	37.4	11.1
Postflexitime	36.8	10.3	37.5	11.24
Consideration				
Preflexitime	36.0	8.9	35.8	9.7
Postflexitime	37.5	8.0	36.2	10.4
Role Perception:^d				
Role Ambiguity				
Preflexitime	32.4	5.2	31.9	5.7
Postflexitime	32.8	5.0	31.8	6.2
Role Conflict				
Preflexitime	25.4	8.8	26.8	9.5
Postflexitime	24.4	8.2	26.3	9.6

	Univariate F Values ^e		
	Group (G)	Time (T)	G x T
Job Satisfaction	3.23	5.90*	1.03
Supervisory Behavior:			
Initiating Structure	2.77	10.74***	0.08
Consideration	0.80	6.74**	0.51
Role Perception:			
Role Ambiguity	0.01	0.34	0.14
Role Conflict	3.58	1.48	2.00
Multivariate F Values:^e	1.62	3.76**	1.02

^aNot all respondents replied to all questionnaire items. Consequently, sample sizes for the five measures varied as follows: Experimental pre- and postflexitime: 623-668 and 324-337 and Control pre- and postflexitime: 571-611 and 435-466.

^bBased on a 5-point scale, where 5 = Very satisfied and 1 = Very dissatisfied. Since 20 items (Nos. 1-20, A-2, B-2), were used to assess this measure, 100 was the maximum score that could be achieved.

^cBased on a 5-point scale, where 5 = Always and 1 = Never. Since 22 items (Nos. 21-42, A-2, B-2) were used to assess supervisor behavior, 110 was the maximum score that could be achieved for the initiating structure and consideration subscales.

^dBased on a 7-point scale, where 7 = Very true and 1 = Very false. Since 14 items (Nos. 43-56, A-2, B-2) were used to assess role perception, 98 was the maximum score that could be achieved for the role ambiguity and role conflict subscales.

^eUnivariate F values were tested against 1, 1650 df; and multivariate F values, against 5, 1646 df.

*p < .05.
**p < .01.
***p < .001.

Table 3
Attitudes of Supervisors and Nonsupervisors Toward Flexitime
Before and After Implementation

Area ^b	Respondents ^a			
	Supervisors		Nonsupervisors	
	M	S.D.	M	S.D.
1. Scheduling Work				
Preflexitime	3.34	0.88	3.48	0.92
Postflexitime	3.49	0.77	3.68	0.88
2. Scheduling Meetings				
Preflexitime	2.87	0.71	3.09	0.76
Postflexitime	3.10	0.62	3.29	0.80
3. Organizational Communication				
Preflexitime	2.90	0.68	3.04	0.72
Postflexitime	3.70	0.55	3.15	0.56
4. Meeting Deadlines				
Preflexitime	3.14	0.71	3.30	0.75
Postflexitime	3.25	0.65	3.41	0.75
5. Work Assignments				
Preflexitime	3.13	0.73	3.19	0.70
Postflexitime	3.30	0.73	3.34	0.74
6. Coordinating Work				
Preflexitime	2.84	0.66	3.05	0.70
Postflexitime	3.13	0.61	3.24	0.68
7. Recordkeeping for Time and Attendance Purposes				
Preflexitime	2.39	0.87	2.69	1.00
Postflexitime	2.65	0.99	3.00	0.96
8. Supervisory Accountability				
Preflexitime	2.85	0.78	3.00	0.79
Postflexitime	3.14	0.72	3.19	0.74
9. Absenteeism Rate				
Preflexitime	3.50	0.83	3.47	0.94
Postflexitime	3.53	0.70	3.59	0.94
10. Tardiness Rate				
Preflexitime	3.68	1.01	3.61	1.10
Postflexitime	3.89	1.10	3.85	1.10
11. Turnover Rate				
Preflexitime	3.21	0.64	3.20	0.78
Postflexitime	3.15	0.66	3.20	0.69
12. Cooperation Within Unit				
Preflexitime	3.25	0.74	3.35	0.76
Postflexitime	3.58	0.84	3.61	0.85
13. Overall Opinion				
Preflexitime	1.99	0.10	1.83	1.00
Postflexitime	1.59	0.90	1.37	0.69

^aNot all respondents replied to all items. Consequently, sample sizes for the 13 measures varied as follows: Supervisors, pre- and postflexitime: 222-228 and 138-144 and Nonsupervisors, pre- and postflexitime: 466-480 and 200-207.

^bFor areas 1 through 12 (Nos. 1-11, 13, A-3), responses were made on a 5-point scale, where 5 = Very positive effect and 1 = Very negative effect. For area 13 (No. 22, A-3), responses were made on a 5-point scale, where 5 = Strongly opposed and 1 = Strongly favor.

Table 3 (Continued)

Area ^b	Respondents ^a			
	Supervisors		Nonsupervisors	
	M	S.D.	M	S.D.
	Univariate F Values ^c			
	Group (G)	Time (T)	G x T	
1. Scheduling Work	0.61	2.12	0.94	
2. Scheduling Meetings	14.87***	11.89***	1.04	
3. Organizational Communication	7.80**	4.05*	0.75	
4. Meeting Deadlines	1.01	5.83*	0.82	
5. Work Assignments	4.35*	0.00	0.79	
6. Coordinating Work	17.93***	11.34***	3.79	
7. Record Keeping for Time and Attendance Purposes	27.65***	34.60***	0.17	
8. Supervisory Accountability	17.05***	4.13*	3.49	
9. Absenteeism Rate	0.00	0.87	0.11	
10. Tardiness Rate	20.13***	0.08	0.21	
11. Turnover Rate	0.52	0.19	0.82	
12. Cooperation Within Unit	12.80***	0.00	4.68*	
13. Overall Opinion	65.83***	12.29***	0.96	
Multivariate Values: ^c	8.19***	4.65***	1.06	

^aNot all respondents replied to all items. Consequently, sample sizes for the 13 measures varied as follows: Supervisors, pre- and postflexitime: 222-228 and 138-144 and Nonsupervisors, pre- and postflexitime: 466-480 and 200-207.

^bFor areas 1 through 12 (Nos. 1-11, 13, A-3), responses were made on a 5-point scale, where 5 = Very positive effect and 1 = Very negative effect. For area 13 (No. 22, A-3), responses were made on a 5-point scale, where 5 = Strongly opposed and 1 = Strongly favor.

^cUnivariate F values tested against 1, 1025 df; and multivariate F values, 13, 1013 df.

*p < .05.

**p < .01.

***p < .001.

Table 4
 Comparisons of Mean Absenteeism and Turnover Rates
 for Experimental and Control Groups

Item	Experimental Subjects	Control Subjects	F-Value
Absenteeism (Hours)			
<u>Annual Leave</u>			
Preflexitime	91.4	86.7	2.60
Postflexitime	97.1	88.1	9.42*
<u>Sick Leave</u>			
Preflexitime	27.6	20.4	8.40*
Postflexitime	24.1	23.6	.08
Turnover Rates (%)			
Preflexitime	6.6 (N = 82)	3.2 (N = 35)	
Postflexitime	4.9 (N = 61)	2.8 (N = 31)	
χ^2	3.3	0.3	

*P < .01.

Absenteeism decreased among experimental subjects, primarily because they used substantially less sick leave and only slightly more annual leave. The increase in annual leave was calculated by subtracting the change noted for the control subjects from the change for the experimental subjects, thus compensating for assumed chance fluctuations and giving a net increase of 4.3 hours per employee. Comparable calculations for sick leave gave a net decrease of 6.7 hours per employee. When these net changes were totaled, results showed that, under flexitime, absenteeism decreased by 2.4 hours per employee over the 6-month period. If this figure is prorated for a full year, it appears that absenteeism would decrease by 4.8 hours per employee.

The average annual decrease was multiplied by the number of employees and the result was divided by the total number of hours the employees worked each year. The resulting figure was multiplied by the average annual salary to estimate the dollar amount saved by the organization. This estimate indicated that an increase of 19.3 man-years had saved the organization nearly \$400,000. Since preflexitime differences between the experimental and control subjects suggested that the groups were not well-matched, however, it is possible that other factors may be affecting absenteeism.

Turnover

The discrepancies in turnover rates for the experimental and control subjects shown in Table 4 indicate that the two groups were not well matched on this measure. Consequently, they were compared only on changes occurring after flexitime. The experimental subjects' turnover rate decreased by 26 percent; and the control subjects', by 11 percent. While the difference favors the experimental groups, it is not statistically significant and does not demonstrate that flexitime affected turnover.

Interviews

At the largest of the experimental sites (a research laboratory), officials reported a substantial increase in utility costs and projected a yearly increase of \$13,000 for additional heat and air-conditioning service. This figure can be considered to be an upper limit across the experimental groups since it was mentioned by only one field activity.

DISCUSSION AND CONCLUSIONS

Attitudinal Measures

Proponents of flexitime argue that employees working under it will develop more positive feelings toward their work. The results of this study, however, show that both experimental and control subjects reported significantly more job satisfaction over time. Although it is possible that longer term effects could alter what appears to be a time effect, the increased satisfaction noted cannot be attributed to flexitime.

Subordinates in experimental and control sites reported similar perceptions of supervisory behavior; that is, they did not perceive their supervisors as initiating more structure, but they did perceive them as being significantly more considerate. Therefore, it appears that supervisors in experimental and control sites may have behaved more considerately but this change cannot be attributed to flexitime.

Path-goal theory (House & Dessler, 1974) may help to explain why role ambiguity and role conflict did not decrease significantly among the experimental subjects. If, as the theory asserts, initiating structure helps to clarify work roles and reduce conflicting directions, then reduction in role ambiguity or role conflict would not be expected, since the supervisors did not initiate structure.

The fact that supervisors, as predicted, reacted less positively to flexitime than did their subordinates, raises the larger question of flexitime's appeal to various levels and subgroups within the organization. Supervisors consistently had less favorable views of flexitime's effect on scheduling work, scheduling meetings, meeting deadlines, and record keeping for time and attendance purposes. This is understandable, since supervisors must assume more responsibility for these areas than do subordinates. Is it realistic, then, to expect that a research scientist and his secretary will view flexitime in the same way? The supervisor/subordinate differences confirmed in this study suggest that future research efforts should examine flexitime's possible varying effects on subgroups within an organization. Analyses currently in progress are intended to investigate these effects in more detail.

Behavioral Measures

Flexitime appeared to have no significant effect on productivity, as measured by the number of manuscripts submitted for editing. This research parallels the findings of Schein, Maurer, and Novak (1977, 1978), who studied clerical employees in an insurance company and found that "the introduction of flexible working hours had no adverse impact on productivity" (p. 463). Such findings, while disappointing to proponents of flexitime, should be interpreted cautiously for several reasons:

1. In both studies, the effect of flexitime was measured over a fairly short period of time.
2. The measures of productivity used in these studies may be insensitive to changes.
3. Some flexitime benefits, including a decrease in absenteeism, appear to accrue without affecting productivity one way or the other.

In the present study, flexitime reduced absenteeism substantially. Experimental subjects used slightly more hours of annual leave but significantly fewer hours of sick leave than did control subjects. Proponents of flexitime would argue that, when employees are able to adjust their work schedules to allow for running unexpected errands or compensating for oversleeping, they are less likely to claim that they are ill when they are not. In any case, the net reduction in absenteeism provided the organization studied with a substantial cost savings.

One caveat should be noted, however. It is often assumed that, if employees are at work, they are producing. In other words, management may expect productivity to increase if workers increase their time on the job. Although this may be true elsewhere, results of the present study, which used numbers of publications submitted as a measure of productivity, did not find such an increase, suggesting that more sensitive measures of productivity should be used in future research.

Unfortunately, the data on turnover do not provide much information on flexitime effects. The turnover rate for the experimental subjects was lower than that for the control subjects, but the decrease was not statistically significant. Moreover, the experimental and control subjects do not appear to have been well matched initially on this measure, making interpretations of this finding tenuous.

Considering the current emphasis on saving energy, it is surprising that so few organizations have questioned flexitime's effect on operational costs. In the current study, it took an extraordinary amount of organizational record-searching and qualification to determine whether or not electricity was being saved with flexitime. Officials at some experimental sites thought that flexitime increased energy use very slightly. Even if these increases were actually due to flexitime, which is difficult to determine, it appears that the benefits still outweigh the costs.

RECOMMENDATIONS

1. Flexitime's success will depend upon its degree of acceptance at several organizational levels. Consequently, organizations planning to implement flexitime should explain its potential benefits to supervisors. Also, they should develop a method of recordkeeping for attendance that is best suited for the organization (e.g., time clocks, sign-in).
2. Future studies of flexitime should (a) use more sensitive measures of productivity, (b) extend the length of measurement to a year or more, and (c) take particular care in matching control and experimental subjects.

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APPENDIX A

VARIABLE WORK SCHEDULE SURVEY

Note. Only the form of the questionnaire used in the first survey is included. For the second survey, the questionnaire was modified by putting the questions relating to flexitime into the past tense or rephrasing the questions to assess the employee's retrospective views.



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VARIABLE WORK SCHEDULE SURVEY

A possibility exists at several ARS locations for the implementation of varying work schedules for employees. One approach which has received much attention is the relatively new concept called "FLEXITIME." In its simplest form, this consists of two parts. The first part is a "core time," which is a band of time during a working day when all employees are required to be present. The second part, "flexitime," is the amount of time before and after core time when an employee may choose working hours.

Within an eight hour workday, a core time could be chosen to include, for example, the hours 9:30 a.m. to 3: p.m. The flexitime hours could then extend from 6:30 a.m. to the beginning of core time and from the end of core time to 6:00 p.m. To complete an 8-hour work day plus lunch period, it can be seen that the possibility exists to work earlier in the day or later into the day than may currently be allowed. By choosing the early morning or later afternoon flexitime hours (or a combination of both), a wide variety of arrival and departure times is possible. The option to make such decisions represents what many believe is the strongest argument in favor of flexitime. It should be cautioned, however, that: (a) employees do not have to change the working hours they currently hold, and (b) any work schedule changes must be agreeable to both the employee and the employee's supervisor.

Though no final decision has been made to permanently implement flexitime, ARS intends to gather information from a variety of sources to help evaluate a flexitime program. One source of information is this form which asks ARS employees to express their attitudes toward their current job situation as well as some specific feelings they have regarding the effects of changes in the arrival and departure schedules of employees at their locations.

The information being requested will be kept strictly confidential and all replies shall be anonymous, please do not sign your name. Since ARS decisions regarding flexitime will be influenced by employee responses, you are urged to give this form your close attention and return it in the envelope provided. If you have additional thoughts regarding flexitime after returning this questionnaire, please send them to:

Flexitime Project
USDA-ARS-PD
Federal Building
Hyattsville, Maryland 20782

Thank you for your time.

The purpose of this section is to give you a chance to tell how you feel about your present job, what aspects you are satisfied with and those you are not satisfied with.

CODE:

- 5—Very satisfied
- 4—Satisfied
- 3—Neither satisfied or dissatisfied
- 2—Dissatisfied
- 1—Very dissatisfied

On my present job, this is how I feel about:

- 1. The chance to do something that makes use of my abilities.
- 2. The feeling of accomplishment I get from the job.
- 3. Being able to keep busy all the time.
- 4. The chances for advancement on this job.
- 5. The chance to tell other people what to do.
- 6. The way ARS policies are put into practice.
- 7. My pay and the amount of work I do.
- 8. The way my co-workers get along with each other.
- 9. The chance to try my own methods of doing the job.
- 10. The chance to work alone on the job.
- 11. Being able to do things that don't go against my conscience.
- 12. The praise I get for doing a good job.
- 13. The freedom to use my own judgment.
- 14. The chance to do things for other people.
- 15. The way my job provides for steady employment.
- 16. The chance to be "somebody" in the community.
- 17. The way my boss handles employees.
- 18. The competence of my supervisor in making decisions.
- 19. The chance to do different things from time to time.
- 20. The working conditions.

This section is intended to allow you to evaluate the supervision you currently receive. When examining these items, please consider only your immediate supervisor.

CODE:

- 5—Always
- 4—Very often
- 3—About as often as not
- 2—Seldom
- 1—Never

- 21. Explains the way my job should be carried out.
- 22. Helps me make working on my job more pleasant.
- 23. Goes out of the way to be helpful to me.
- 24. Respects my feelings and opinions.
- 25. Is thoughtful and considerate of me.
- 26. Maintains a friendly atmosphere with me.
- 27. Explains the part that I am to play in the work unit.
- 28. Explains rules and procedures to me in detail.
- 29. Organizes my work activities.

CODE:

- 5—Always
- 4—Very often
- 3—About as often as not
- 2—Seldom
- 1—Never

- 30. Lets me know where I stand in my work.
- 31. Lets me know what is expected of me.
- 32. Is friendly and approachable towards me.
- 33. Encourages me to use uniform procedures.
- 34. Does little things to make it pleasant for me to be a member of the unit.
- 35. Makes attitudes clear to me.
- 36. Treats me as an equal.
- 37. Gives me advance notice of changes.
- 38. Assigns me to particular tasks.
- 39. Makes sure that I understand his/her part in the work unit.
- 40. Looks out for my personal welfare.
- 41. Schedules the work I am to do.
- 42. Asks that I follow standard rules and regulations.

This section deals with the role of employees in ARS. Please indicate the degree to which the condition exists for you.

CODE:

- 7—Very true
- 6—True
- 5—Somewhat true
- 4—Unsure
- 3—Somewhat false
- 2—False
- 1—Very false

- 43. I feel certain about how much authority I have.
- 44. Clear, planned goals and objectives for my job.
- 45. I have to do things that should be done differently.
- 46. I work under incompatible policies and guidelines.
- 47. I know that I have divided my time properly.
- 48. I receive an assignment without the manpower to complete it.
- 49. I know what my responsibilities are.
- 50. I have to buck a rule or policy in order to carry out an assignment.
- 51. I know exactly what is expected of me.
- 52. I receive incompatible requests from two or more people.
- 53. I receive an assignment without adequate resources and materials to execute it.
- 54. Explanation is clear of what has to be done.
- 55. I work on unnecessary things.
- 56. I have to work under vague directives or orders.

In your opinion, what kinds of change would flexible work schedules have upon the following areas:

CODE:

- 5- Very positive
- 4- Positive
- 3- No change
- 2- Negative
- 1- Very negative

- _____ 1. Scheduling work projects.
- _____ 2. Scheduling meetings.
- _____ 3. Communications with other ARS locations.
- _____ 4. Meeting deadlines.
- _____ 5. Assigning work to individuals.
- _____ 6. Coordinating work done between subgroups.
- _____ 7. Recordkeeping for Time & Attendance purposes.
- _____ 8. Supervisory accountability.
- _____ 9. Absenteeism rate.
- _____ 10. Tardiness rate.
- _____ 11. Turnover rate.
- _____ 12. Traffic congestion.
- _____ 13. Cooperation within your work unit.

Employees with families often find that they must consider other persons' schedules when planning their own. Please indicate how a changed work schedule would affect the following areas:

CODE:

- 3- Would help me
- 2- No change
- 1- Would hinder me

- _____ 14. Child-care arrangements.
- _____ 15. Coordinating own schedule with that of spouse or other adults in family.
- _____ 16. Other non-work related activities (e.g., shopping, etc.)

ARS is considering the feasibility of implementing changes in work schedules such that individual employees would be able to have more flexibility in choosing their work hours. Below are several different work schedules under consideration. Please indicate which one of these you would most prefer for Fall and Winter and which one for Spring and Summer.

17. Fall and Winter

- 1 6:00 a.m. - 2:30 p.m.
- 2 6:30 a.m. - 3:00 p.m.
- 3 7:00 a.m. - 3:30 p.m.
- 4 7:30 a.m. - 4:00 p.m.
- 5 8:00 a.m. - 4:30 p.m.
- 6 8:30 a.m. - 5:00 p.m.
- 7 9:00 a.m. - 5:30 p.m.
- 8 9:30 a.m. - 6:00 p.m.

18. Spring and Summer

- 1 6:00 a.m. - 2:30 p.m.
- 2 6:30 a.m. - 3:00 p.m.
- 3 7:00 a.m. - 3:30 p.m.
- 4 7:30 a.m. - 4:00 p.m.
- 5 8:00 a.m. - 4:30 p.m.
- 6 8:30 a.m. - 5:00 p.m.
- 7 9:00 a.m. - 5:30 p.m.
- 8 9:30 a.m. - 6:00 p.m.

A major concern of employees who consider changing their work schedules is transportation to and from work. Consider the effect such a change would have upon your own transportation. Please indicate your present mode of getting to work and the future mode after your work schedule has changed. (Choose only the predominant mode in each category.)

19. Present transportation

- 1 Walk
- 2 Bicycle
- 3 Carpool
- 4 Public transportation
- 5 Drive alone

20. Future transportation

- 1 Walk
- 2 Bicycle
- 3 Carpool
- 4 Public transportation
- 5 Drive alone

21. In your opinion, who would benefit from changing to flexible work schedules?

- 1 ARS, as an agency
- 2 ARS employees
- 3 ARS employees more than the agency
- 4 The agency more than the employees
- 5 Both will benefit about the same

22. Considering the issues raised in the preceding questions, please indicate your overall feelings regarding the possible implementation of employee-chosen flexible work hours.

- 1 Strongly favor
- 2 Favor
- 3 Neutral
- 4 Opposed
- 5 Strongly opposed

23. Which one of the following reasons do you feel might be the major advantage of flexitime?

- 1 Greater utilization of non-work hours for personal use
- 2 Ease rush hour traffic
- 3 Prefer working in the morning
- 4 Better utilization of leave time
- 5 Greater utilization of non-work hours for family
- 6 Better utilization of transportation (i.e., opportunity to join carpools, adjust to public transportation schedules, etc.)
- 7 Responsibilities for children (In school, babysitter, etc.)
- 8 Prefer arriving late and working late
- 9 Other:

24. Which one of the following reasons do you think might be the major drawback to flexitime?

- 1 Maintaining communications with other ARS locations
- 2 Scheduling work to be completed when supervisor is not present
- 3 Scheduling meetings
- 4 Increased use of energy to keep building open, etc.
- 5 Breaking up carpools
- 6 People taking unfair advantage of working hour flexibility
- 7 Interruption of work due to people coming and going
- 8 Recordkeeping of people's schedules
- 9 Other:

Please check one response for each item listed:

25. Current pay category

- 1 GS (General Schedule)
- 2 Wage Grade
- 3 Wage Leader
- 4 Wage Supervisor
- 5 Other

26. What is your current pay grade?

- 1 1 to 4
- 2 5 to 8
- 3 9 to 11
- 4 12 to 13
- 5 14 or above

27. Education (Highest level achieved)

- 1 Less than High School graduate
- 2 High School graduate
- 3 Some College training (Vo-Tech., etc.)
- 4 Bachelors Degree
- 5 Masters Degree
- 6 Doctor of Veterinary Medicine
- 7 Ph.D.

28. How old are you?

- 1 Less than 20 years
- 2 20 to 30 years
- 3 31 to 40 years
- 4 41 to 50 years
- 5 51 to 55 years
- 6 Over 55 years

29. Sex

- 1 Male
- 2 Female

30. Supervisory status

- 1 Supervisor
- 2 Nonsupervisor
- 3 Not sure

2

YOU PROBABLY REALIZE THAT THERE ARE ISSUES SURROUNDING WORK SCHEDULE CHANGES WHICH MAY GO UNNOTICED. THEREFORE, PLEASE USE THE SPACE BELOW TO LET US KNOW HOW YOU FEEL ABOUT THE CONCEPT PRESENTED OR OTHER RELATED AREAS.



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VARIABLE WORK SCHEDULE SURVEY – SIX-MONTH FOLLOW-UP

Several months ago you were contacted by the ARS Personnel Division to obtain your attitudes toward your job and various aspects of flexible work hours. Following that contact, your location was given the option of implementing varying work schedules. This questionnaire is being sent to find out how employees feel about such changes and how these changes have affected various areas on and off the job.

Your location is one of several throughout the Agency which has been given the flexitime option and ARS is requesting the information from this questionnaire to aid in its evaluation of this program. As before, your responses are being considered in the overall examination of the value of such changes. Please give this form your close attention and return it in the envelope provided. All replies shall be anonymous, please do not sign your name.

Thank you for your time.

APPENDIX B
WORK ATTITUDE SURVEY

Note. The same form of this questionnaire was used in the pre- and post-flexitime surveys.



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WORK ATTITUDE SURVEY

In an effort to assess employee attitudes in a number of work-related areas, the ARS Personnel Division is contacting employees at several locations throughout the Agency to obtain information.

This questionnaire is divided into four parts. The first section contains questions 1-20 and deals with various areas of job activity which affect satisfaction. The second section — questions 21-42 — is concerned with how employees view their immediate supervisor. Questions 43-56 form the third section related to the perceived roles individuals fulfill as ARS employees. The fourth and final section requests background information for statistical subgroup analyses.

The information being requested will be kept strictly confidential and all replies shall be anonymous, please do not sign your name. Since this format is one of the few which allows large numbers of persons to express their opinions, you are urged to give this form your close attention and return it in the envelope provided.

Thank you for your time.

The purpose of this section is to give you a chance to tell how you feel about your present job, what aspects you are satisfied with and those you are not satisfied with.

CODE:

- 5- Very satisfied
- 4- Satisfied
- 3- Neither satisfied or dissatisfied
- 2- Dissatisfied
- 1- Very dissatisfied

On my present job, this is how I feel about:

- 1. The chance to do something that makes use of my abilities.
- 2. The feeling of accomplishment I get from the job.
- 3. Being able to keep busy all the time.
- 4. The chances for advancement on this job.
- 5. The chance to tell other people what to do.
- 6. The way ARS policies are put into practice.
- 7. My pay and the amount of work I do.
- 8. The way my co-workers get along with each other.
- 9. The chance to try my own methods of doing the job.
- 10. The chance to work alone on the job.
- 11. Being able to do things that don't go against my conscience.
- 12. The praise I get for doing a good job.
- 13. The freedom to use my own judgment.
- 14. The chance to do things for other people.
- 15. The way my job provides for steady employment.
- 16. The chance to be "somebody" in the community.
- 17. The way my boss handles employees.
- 18. The competence of my supervisor in making decisions.
- 19. The chance to do different things from time to time.
- 20. The working conditions.

This section is intended to allow you to evaluate the supervision you currently receive. When examining these items, please consider only your immediate supervisor.

CODE:

- 5- Always
- 4- Very often
- 3- About as often as not
- 2- Seldom
- 1- Never

- 21. Explains the way my job should be carried out.
- 22. Helps me make working on my job more pleasant.
- 23. Goes out of the way to be helpful to me.
- 24. Respects my feelings and opinions.
- 25. Is thoughtful and considerate of me.
- 26. Maintains a friendly atmosphere with me.
- 27. Explains the part that I am to play in the work unit.
- 28. Explains rules and procedures to me in detail.
- 29. Organizes my work activities.

CODE:

- 5- Always
- 4- Very often
- 3- About as often as not
- 2- Seldom
- 1- Never

- 30. Lets me know where I stand in my work.
- 31. Lets me know what is expected of me.
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- 33. Encourages me to use uniform procedures.
- 34. Does little things to make it pleasant for me to be a member of the unit.
- 35. Makes attitudes clear to me.
- 36. Treats me as an equal.
- 37. Gives me advance notice of changes.
- 38. Assigns me to particular tasks.
- 39. Makes sure that I understand his/her part in the work unit.
- 40. Looks out for my personal welfare.
- 41. Schedules the work I am to do.
- 42. Asks that I follow standard rules and regulations.

This section deals with the role of employees in ARS. Please indicate the degree to which the condition exists for you.

CODE:

- 7- Very true
- 6- True
- 5- Somewhat true
- 4- Unsure
- 3- Somewhat false
- 2- False
- 1- Very false

- 43. I feel certain about how much authority I have.
- 44. Clear, planned goals and objectives for my job.
- 45. I have to do things that should be done differently.
- 46. I work under incompatible policies and guidelines.
- 47. I know that I have divided my time properly.
- 48. I receive an assignment without the manpower to complete it.
- 49. I know what my responsibilities are.
- 50. I have to buck a rule or policy in order to carry out an assignment.
- 51. I know exactly what is expected of me.
- 52. I receive incompatible requests from two or more people.
- 53. I receive an assignment without adequate resources and materials to execute it.
- 54. Explanation is clear of what has to be done.
- 55. I work on unnecessary things.
- 56. I have to work under vague directives or orders.

1

Please check one response for each item listed:

1. Current pay category

- 1 GS (General Schedule)
- 2 Wage Grade
- 3 Wage Leader
- 4 Wage Supervisor
- 5 Other

2. What is your current pay grade?

- 1 1 to 4
- 2 5 to 8
- 3 9 to 11
- 4 12 to 13
- 5 14 or above

3. Education (Highest level achieved)

- 1 Less than High School graduate
- 2 High School graduate
- 3 Some College training (Vo-Tech., etc.)
- 4 Bachelors Degree
- 5 Masters Degree
- 6 Doctor of Veterinary Medicine
- 7 Ph.D.

4. How old are you?

- 1 Less than 20 years
- 2 20 to 30 years
- 3 31 to 40 years
- 4 41 to 50 years
- 5 51 to 55 years
- 6 Over 55 years

5. Sex

- 1 Male
- 2 Female

6. Supervisory status

- 1 Supervisor
- 2 Nonsupervisor
- 3 Not sure

2



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WORK ATTITUDE SURVEY – SIX-MONTH FOLLOW-UP

Several months ago you were contacted by the ARS Personnel Division for information related to your attitudes toward various aspects of your job. This questionnaire is identical to the one you previously completed and is sent so that ARS can monitor any changes in attitude which occur over time. As before, you are among a group of employees selected from several ARS locations who are receiving this form. It is expected that this group will give ARS an Agency-wide perspective regarding employee attitudes and how they may change over time.

This questionnaire is divided into four parts. The first section contains questions 1-20 and deals with various areas of job activity which affect satisfaction. The second section – questions 21-42 – is concerned with how employees view their immediate supervisor. Questions 43-56 form the third section related to the perceived roles individuals fulfill as ARS employees. The fourth and final section requests background information for statistical subgroup analyses.

The information being requested will be kept strictly confidential and all replies shall be anonymous, please do not sign your name. Since this format is one of the few which allows large numbers of persons to express their opinions, you are urged to give this form your close attention and return it in the envelope provided.

Thank you for your time.

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