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ABSTRACT

The paper is concerned with determining from a large sample of British industrial workers, whether there is an unconditional relationship between job specialization and worker dissatisfaction, or a relationship contingent on middle-class work values. The recent work literature includes three contradictory propositions relating job specialization and worker dissatisfaction. The first predicts an unconditional relationship between these variables; the second predicts that it will be higher among workers committed to middle-class work values; the third predicts that it will be higher among "alienated" workers. Data were gathered in a survey of 5,274 industrial workers employed in six factories in England, Scotland, and Wales. The research instrument, a 153-item questionnaire, was completed by 61 percent or 3,193 workers. For the most part, workers of both sexes and of varying age and tenure, were low skilled and worked on production lines. From the data, presented in tabular form, it is concluded that correlates of job specialization related in different ways and in varying degrees to worker dissatisfaction. The complexity of the problem is that workers' affective responses to characteristics of specialized work are not uniform, but vary with different job characteristics. A bibliography is provided. (Author/JB)

JOB SPECIALIZATION, WORK VALUES AND WORKER DISSATISFACTION

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Technical Report No. 29

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The recent work literature includes three contradictory propositions relating job specialization and worker dissatisfaction. The first predicts an unconditional relationship between these variables; the second predicts that it will be higher among workers committed to middle-class work values; the third predicts that it will be higher among "alienated" workers. This paper reports data from 3,193 British industrial workers which suggest that, when individually measured and analyzed, job characteristics relate in

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different ways and in varying degrees to worker dissatisfaction. The implication for the above propositions is that they may be complementary rather than competing; the validity of each may depend on the specific correlate or correlates of specialization upon which attention if focused.

Job Specialization, Work Values and Worker Dissatisfaction

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Are workers on highly specialized jobs more dissatisfied with work than workers on less specialized jobs? Or, is this relationship contingent upon identification with or alientation from middle-class work values.

Although an important and polemical focus of recent research, the data presented in this paper suggest that these questions oversimplify an exceedingly complex issue. Job specialization occasions numerous changes in the content of industrial jobs, but the attitudinal responses to specialized work are not uniform. Whereas some job characteristics (presumed correlates of job specialization) may be unconditionally related to worker dissatisfaction, the evidence examined in this paper suggests that others are so related only for workers alienated from middle-class work values, while still other job characteristics are unrelated to worker dissatisfaction.

Literature Synopsis

From Marx (1963) to Ellul (1967), considerable attention has been

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devoted to the presumed consequences of job specialization and particularly to the dissatisfaction industrial workers derive from specialized work. It is generally assumed that industrialization brings with it increased specialization with the result that jobs become more fragmented, simplified and repetitive and provide less autonomy or discretion to individual workers. The predicted consequence is that workers on specialized jobs derive less satisfaction from work than workers on non-specialized jobs, i.e., that job specialization and worker dissatisfaction are unconditionally related.

Whereas this thesis is corroborated in several industrial studies, others question its validity (for a review see Hulin and Blood, 1968). In an effort to resolve the controversy, studies have recently appeared which suggest that the relationship between job specialization and worker dissatisfaction may be contingent on a third, intervening construct--alienation from or commitment to middle-class work values (see Turner and Lawrence, 1965; Blood and Hulin, 1967; Hulin, 1973; Schuler, 1973; also see Hackman and Lawler, 1971). Here the suggestion is, whereas job specialization may be salient for alienated workers, it is likely to be much more salient for workers committed to middle-class work values. Thus, job specialization should be more highly related to worker dissatisfaction for committed workers than for alienated workers.

This view has not gone unchallenged. On the basis of his study of craft, assembly-line and automated workers, Shepard (1970: 217) concludes that the relationship between job specialization and worker dissatisfaction is not contingent on work values; that it is unconditional. In a more recent paper, however, Shepard discusses additional data which suggest that the specialization-dissatisfaction relationship "...is consistently higher

among alienated workers than it (is) among nonalienated workers" (1973: 857). Of course, this finding directly contradicts the studies of Turner and Lawrence, Blood and Hulin, and Schuler cited above, and it also is inconsistent with the conclusions of Shepard's own, earlier research!

Briefly then, the recent work literature includes three contradictory propositions relating job specialization and worker dissatisfaction. The first predicts an unconditional relationship between these variables; the second predicts that this relationship will be stronger among workers committed to middle-class work values; the third predicts that it will be stronger among alienated workers. This paper reports the results of a large-scale survey of British industrial workers which suggest that job characteristics relate in different ways and in varying degrees to worker dissatisfaction, i.e., that the validity of each of the above propositions may depend on the specific correlate or correlates of job specialization upon which attention is focused.

Research Procedures

Data were gathered during 1969 in a survey of 5,274 industrial workers employed in six factories in England, Scotland and Wales. The principle research instrument was a 153 item questionnaire. The overall response was 61% with 3,193 workers returning a completed questionnaire. While the majority of respondents were low skilled and worked on production lines, both sexes were equally represented, and workers of varying age and tenure were also well represented (detailed descriptions of the survey and the sample are given in Hedley, 1971; Taveggia, 1971; and Hedley and Taveggia, 1974).

Measurement

Job Specialization. Job specialization refers to the process whereby work activities become fragmented, simplified and repetitive and limit the autonomy or discretion exercised by individual workers (see Thompson, 1969: 25-27 for a comparison of job or "task" specialization with "people" specialization; for a similar distinction see Dubin, 1958: 176-87). While this process is never total, jobs do vary in their degree of specialization with numerous characteristics differentiating more highly specialized jobs from less specialized ones.

This research measures five correlates of job specialization. Each measure is identified by a unique label which will be referenced in subsequent sections of this paper; the first response alternative to each measure is taken to indicate higher specialization than the second response alternative; and percentages are based on the number responding to each item, i.e., non-responses are excluded from the computations.

SPEC1: In working at my job:

52% I must wait to be relieved before I can stop working.
48% I can stop working when I need to.

(N=2794)

SPEC2: In my job:

54% I do the same thing all the time.
46% I have a chance to do many different things.

(N=2959)

SPEC3: I can move around the factory while doing my job:

68% No
32% Yes

(N=2973)

SPEC4: In my job there are:

75% No breaks, except for lunch and tea.
25% Slack periods when I can do what I want.

(N=2634)

SPEC5: My job requires that I work at a certain speed:

79% Yes
21% No

(N=2978)

Central to discussions of job specialization is the assumption that different degrees of specialization are associated with different types of industrial technology, i.e., jobs in mechanized production systems are considered to be the most specialized, with automated and craft jobs being progressively less specialized (see, for example, Faunce, 1965). Thus, to the degree that the above measures are valid indicators of specialization, and allowing for measurement error, they should show at least moderate relationships to production-line mechanization. Evidence for this is presented in Table 1; all five job characteristics are moderately or highly related

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TABLE 1 ABOUT HERE

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to mechanization.

Work Values. Middle-class work values comprise a system of enduring beliefs, including a belief in the intrinsic value of hard work and an orientation toward upward mobility through occupational achievement (see Hulin and Blood, 1968: 386). Individuals holding these values typically manifest a strong

commitment to work; work is their "central life interest".

Three measures of work values were employed in the present research. These measures were adapted from Robert Dubin's "central life interests" questionnaire which measures workers' preferences for work over nonwork sectors of their social experience (see Dubin, 1956; also see Dubin, Taveggia and Hedley, 1974). As for the specialization measures discussed above, each of these measures is identified by a unique lable which will be referenced in subsequent sections of this paper, and non-responses are excluded from percentage computations.

WVAL1: I believe that:

61% Things I do around home or in the neighborhood are more important than anything else.
39% My job is more important than anything else.

(N=2811)

WVAL2: I am most interested in:

74% Things I usually do in my free time.
26% Things about my job.

(N=2796)

WVAL3: When I am worried, it is usually about:

80% Things that happen at home.
20% Things at work.

(N=2717)

Of course, in using these items we assume that workers who believe that their job is more important than anything else, who are more interested in their job than things they do in their free time, and who worry most often about things at work rather than things at home are more likely to identify with the full-range of middle-class work values than nonwork oriented employees. Conversely, we suggest that those choosing the first response to

each item are more likely to be alienated from middle-class work values.

Worker Dissatisfaction. In designing measures of worker dissatisfaction, the traditional interpretation of satisfaction-dissatisfaction was adopted, i.e., workers' overall affective responses to work were assumed to range along a single continuum from extreme dissatisfaction to extreme satisfaction (see Price, 1972: 156-7). While it is conventional for satisfaction studies to pose relationships in terms of satisfaction rather than dissatisfaction, as a matter of convenience and to simplify the presentation to follow, this study adopts the alternative strategy of reporting relationships in terms of dissatisfaction.

Two five-point measures of worker dissatisfaction were included in this research. These measures have been dichotomized to compensate for their extreme marginals and to simplify subsequent analyses. As with previous measures, each is identified by a unique label and non-responses are excluded from percentage computations.

DSAT1: Overall, how do you feel about your job — the things you actually do at work?

24% Very Dissatisfied (3%); Dissatisfied (6%); Indifferent (14%)
76% Satisfied (62%); Very Satisfied (14%)

(N=3098)

DSAT2: Overall, how do you feel about this works (company)?

49% The Worst (1%); Worse than Most (3%); About Average (45%)
51% Better than Most (42%); The Best (9%)

(N=3065)

Clearly, most industrial workers represented in this study indicated

that they were satisfied with both their jobs and their companies ("works"). Given reviews of earlier satisfaction research, this finding is not unduly surprising. For example, Blauner has concluded that "...the vast majority of workers in virtually all occupations and industries, are moderately or highly satisfied, rather than dissatisfied with their jobs" (1969: 247). Similar conclusions consistently have been reached by other reviewers (see, for example, Herzberg, et al., 1957; Robinson, 1958; Robinson and Connors, 1964).

Multidimensional Item Analysis

Table 2 presents the results of a multidimensional item analysis (see

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TABLE 2 ABOUT HERE

Napior, 1972) of the ten items examined above. The general goal of this procedure is to determine whether measures of one variable relate more highly with each other than they do with measures of one or more other variables. If this result obtains, then it is reasonable to conclude that the measures are "valid" in the sense that they measure the variables they were designed to measure.

The basic input to this procedure is the inter-item association matrix presented at the top of Table 2. Guttman-Lingoes Smallest Space Analysis I (see Bloombaum, 1970) was used to represent visually the ordinal structure underlying this matrix of Gamma coefficients. The resulting "space diagram"

is presented at the bottom of Table 2. The dotted lines superimposed on the space diagram enclose items used to measure each variable, i.e., they represent our expectations as to how these items should cluster. The solid lines, on the other hand, were obtained by means of an Elementary Linkage Analysis (see McQuitty, 1957) of the Gamma matrix and they indicate the way these items actually did cluster.

It is clear from Table 2 that the items used to measure job specialization, work values and worker dissatisfaction show their highest associations with other measures of the same variables and not with measures of the other variables. As noted above, this result suggests that our measures are valid.

Results

To briefly recapitulate, our concern in this paper is to determine whether data from a large sample of British industrial workers reveal an unconditional relationship between job specialization and worker dissatisfaction, or a relationship contingent on middle-class work values. Table 3 reports the results of our analysis which involved decomposing the

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TABLE 3 ABOUT HERE

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zero-order Gammas (see Davis, 1971: 81-106) summarizing the relationship between each measure of job specialization and each measure of worker dissatisfaction. Thus, in addition to the zero-order Gammas (γ_{ij}), we

also report partial Gammas for alienated workers ($\gamma_{ij \cdot k}$) as well as for workers committed to middle-class values ($\gamma_{ij \cdot \bar{k}}$). These partials are presented in the middle columns of Table 3 followed by their absolute difference ($|\gamma_{ij \cdot k} - \gamma_{ij \cdot \bar{k}}|$).

In the three columns to the right of Table 3, results are sorted into three groups -- those favoring the unconditional or "direct" model, those favoring a conditional or "specified" model and those indicated that job specialization and worker dissatisfaction are unrelated. For any given data set (row), if $\gamma_{ij \cdot k}$ and $\gamma_{ij \cdot \bar{k}} \geq .15$ and $|\gamma_{ij \cdot k} - \gamma_{ij \cdot \bar{k}}| < .10$, it was concluded that the evidence favored the "direct" model, but if $\gamma_{ij \cdot k}$ or $\gamma_{ij \cdot \bar{k}} \geq .15$ and $|\gamma_{ij \cdot k} - \gamma_{ij \cdot \bar{k}}| \geq .10$, it was concluded that the evidence favored a "specified" model. Of course, two different specified models might obtain depending on whether the specialization-dissatisfaction relationship is higher for workers alienated from middle-class work values or for committed workers. Thus, data sets favoring these alternative models are labeled "A" and "C," respectively, in the "specified" column of Table 3.

In passing it should be pointed out that the above criteria are non-stringent, i.e., they probably inflate the number of "true" relationships in Table 3. We shall return to this point below.

The first row of Table 3 presents the results of a combined scale analysis. Here, measures of each variable were weighted using sequential integers and the resulting scores were summed for each respondent on each scale. These scale scores were then dichotomized in accordance with approximately equal marginal splits and Gamma coefficients were computed to summarize their interrelationships.

As indicated, the results of this analysis favor the "direct" model. That is, a positive relationship obtains between the job specialization and

worker dissatisfaction scales irrespective of whether respondents were alienated from or committed to middle-class work values. Note, however, that neither of the partial Gammas is greater than .17, suggesting only a weak relationship between job specialization and worker dissatisfaction. More important, examination of the relationships between separate measures of each variable below suggests that the results of this combined scale analysis are misleading.

Following the scale results at the top of Table 3 are thirty overlapping tests of the specialization-dissatisfaction relationship, one for each combination of measures (see Curtis and Jackson, 1963 for a discussion of the advantages of the separate-versus-combined use of multiple indicators in survey research; for future elaboration see Costner, 1969). These tests clearly indicate that the correlates of specialization measured in this research are inconsistent in their effects.

SPEC1 and SPEC4 are unrelated to either measure of worker dissatisfaction, and this irrespective of whether respondents were alienated or committed. Of course, SPEC1 and SPEC4 measure related job features -- relief opportunities and work pace. Apparently, whether or not these workers had to wait to be relieved before they stopped working, and whether they experienced slack periods in their jobs had little to do with their overall affective response to work.

SPEC5, in contrast, is consistently related to both job and company dissatisfaction, but only for alienated workers. This suggests that work speed may be a potential source of dissatisfaction for workers alienated from middle-class work values, but not for committed workers.

Relationships involving SPEC2 and SPEC3 are less consistent, i.e., they vary depending on how worker dissatisfaction and/or work values were measured.

SPEC2 measures work variety. Although unrelated to company dissatisfaction, and unrelated to job dissatisfaction for committed workers, variety is related to job dissatisfaction for alienated workers. SPEC3, movement, is related to worker dissatisfaction in different ways depending on how work values and worker dissatisfaction were measured.

The importance of these latter results should be underscored. Apparently, conclusions pertaining to the specialization-work values-dissatisfaction relationship many depend not only on what job characteristics are measured, but also on how work values and worker dissatisfaction are measured!

The final, and perhaps most important thing to note with respect to Table 3 is that none of the observed relationships are strong, i.e., the largest Gamma < .30. In that Gamma is a non-stringent measure of association (see Leik and Gove, 1969: 697-702), other ordinal measures (eg. Somer's d or Leik and Gove's d') and more traditional metrics (eg. Pearson's r) would have yielded even lower absolute values (see Rutherford, 1971). Furthermore, it will be recalled that we employed non-stringent criteria for deciding, for any given data set, whether relationships actually obtained. Both of these choices were dictated by our desire to maximize the possibility of finding relationships, "direct" or "specified". Fifteen of the thirty data sets nevertheless suggest that there is no relationship between specialization and worker dissatisfaction.

Only four data sets favor the "direct" model, and these reveal no discernable pattern which would explain their occurrence. Similarly, only one data set favors the "specified" model which predicts that job specialization is more highly related to dissatisfaction for committed workers.

The remaining eleven data sets suggest that specialization and dis-

satisfaction are related for alienated workers. But, given our non-stringent measure of association and our non-stringent criteria for sorting relationships, these findings must be regarded as tenuous. If some of the measured job features do explain a portion of the variation in alienated worker's affective response to work, that portion is not large.

Discussion

The major conclusion suggested by the data presented above is that correlates of job specialization related in different ways and in varying degrees to worker dissatisfaction. The job characteristics measured in this research appear unrelated to worker dissatisfaction, or "weakly" related for workers alienated from middle-class work values. Of course, other, unmeasured job features may be unconditionally related to dissatisfaction, or related for workers committed to middle-class work values.

Of the six studies cited at the outset of this paper, only two (Turner and Lawrence, 1965; Hackman and Lawler, 1971) present data relevant to these latter possibilities. The remaining studies did not measure specialization (Blood and Hulin, 1967; Schuler, 1973), measured specialization indirectly (Shepard, 1970), or only reported combined scale results (Shepard, 1973).

In the Turner and Lawrence study, associations between seven separately measured task attributes and job satisfaction are summarized for both town and cities workers (Turner and Lawrence, 1965: 75). Results obtained using these measures are inconsistent. Two task attributes are unrelated to satisfaction and five are related to satisfaction, but only for town workers.

In interpreting their results, Turner and Lawrence suggest that the size of the area in which one works and lives provides an indirect measure

of middle-class work values, with rural, town workers being more likely to hold middle-class work values than urban, city workers. Thus, they conclude that the specialization-dissatisfaction relationship is higher for workers committed to middle-class work values (i.e., town workers).

However, no direct evidence is presented for the proposition that town workers are more likely than city workers to be committed to middle-class work values, and a reasonable argument can be made for the opposite proposition. In our recent cumulation of twenty separate "central life interests" researches (see Dubin, Taveggia and Hedley, 1974), for example, it was found that urban workers more frequently located their overall central life interests in work than rural workers. This suggests that urban workers are more likely to be committed to middle-class work values than workers from rural settings. This conclusion is supported by other investigators. Burchinal (1961), for example, cites research which indicates that farm and rural youth tend to have lower occupational aspirations than city youth, i.e., they tend to be less oriented toward upward mobility through occupational achievement.

If our interpretation of the work values of town and city workers is correct, then it is clear that Turner and Lawrence's findings are directly compatible with the findings of this research. In both studies, job features are either unrelated to worker dissatisfaction or related to dissatisfaction for alienated workers only.

Hackman and Lawler's findings (1971: 279) present a somewhat different picture. In this study, four job characteristics are related to worker satisfaction. Two of these characteristics are unconditionally related to satisfaction. The other two job features are conditionally related to satisfaction, but these relationships are partitioned on "need strength"

rather than work values, i.e., one job feature is related to satisfaction only for workers with high need strength, while the other is so related only for workers with low need strength. Of course, to the degree that need strength and work values are related, the implication is that one of these characteristics is related to satisfaction for committed workers, while the other is related to satisfaction for alienated workers.

Taken together, we feel the results of these three studies are clear in suggesting that correlates of job specialization are variously related to worker dissatisfaction. Hackman and Lawler's data suggest that some correlates of specialization are unconditionally related to worker dissatisfaction. Turner and Lawrence's data and the data presented in this paper suggest that others are so related only for workers alienated from middle-class work values, and that still other job characteristics are unrelated to worker dissatisfaction.

It should be noted, in passing, that there is some overlap in the correlates of specialization measured in these three studies. For example, all three studies include a measure of work variety. While important, a systematic analysis of the results obtained at these points of overlap is beyond the scope of this paper and will be presented separately.

Conclusion

For over a century, industrial social scientists have been concerned to understand the human impacts of job specialization. More often than not, however, job specialization has been viewed as a unitary process. Insufficient attention has been given to the fact that specialization introduces varied and complex changes into industrial work with the result

that numerous characteristics differentiate more highly specialized jobs from less specialized ones. The evidence examined in this paper introduces the further complexity that workers' affective responses to characteristics of specialized work are not uniform, but vary with different job characteristics.

The implication of these conclusions for the alternative specialization-dissatisfaction propositions outlined at the outset of this paper are clear. These propositions are probably complementary rather than competing; the validity of each probably depends on the specific correlate or correlates of specialization upon which attention is focused. While some correlates of job specialization may be unconditionally related to worker dissatisfaction, others appear conditionally related, while still other job characteristics are unrelated to worker dissatisfaction.

In concluding, we feel these results are also clear in pointing to the need for research which would identify the full-range of characteristics differentiating jobs of different degrees of specialization as well as the linked human response to each. This must be the starting point for a thorough, scientific understanding of the human impacts of job specialization or, for that matter, any job re-design program.

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TABLE 1

GAMMA COEFFICIENTS SUMMARIZING RELATION OF PRODUCTION LINE MECHANIZATION TO JOB SPECIALIZATION MEASURES[1]

Job Specialization Measures	Production Line Mechanization
1. SPEC 1	0.76
2. SPEC 2	0.52
3. SPEC 3	0.74
4. SPEC 4	0.43
5. SPEC 5	0.57

[1]Caution should be exercised in interpreting the coefficients in this table. Production line mechanization was measured at the department level by observing whether the majority of respondents in a department worked on a production line (see Hedley, 1971: 28-32). Thus, the relationships summarized here are the relationships between job characteristics as perceived by each worker and the production line mechanization of the department he or she worked in. They do not refer to the relationship between each worker's perceptions and whether or not he or she actually worked on a production line.

TABLE 2
MULTIDIMENSIONAL ITEM ANALYSIS OF
JOB SPECIALIZATION, WORK VALUES AND WORKER DISSATISFACTION ITEMS

A. GAMMA MATRIX FOR JOB SPECIALIZATION, WORK VALUES, AND WORKER DISSATISFACTION

Items	Job Specialization					Work Values			Worker Dissatisfaction	
	1	2	3	4	5	1	2	3	1	2
Job Specialization										
SPEC 1	--									
SPEC 2	.37	--								
SPEC 3	.74	.59	--							
SPEC 4	.63	.48	.64	--						
SPEC 5	.63	.45	.65	.61	--					
Work Values										
WVAL 1	.17	.10	.23	.23	.11	--				
WVAL 2	.12	.26	.28	.12	.05	.81	--			
WVAL 3	.00	.07	.14	.01	.05	.42	.57	--		
Worker Dissatisfaction										
DSAT 1	.05	.26	.16	.12	.11	.39	.51	.03	--	
DSAT 2	.04	.14	.20	.14	.16	.32	.38	.09	.72	--

B. SPACE DIAGRAM OF JOB SPECIALIZATION, WORK VALUES, AND WORKER DISSATISFACTION MEASURES (COEFFICIENT OF ALIENATION = .08)

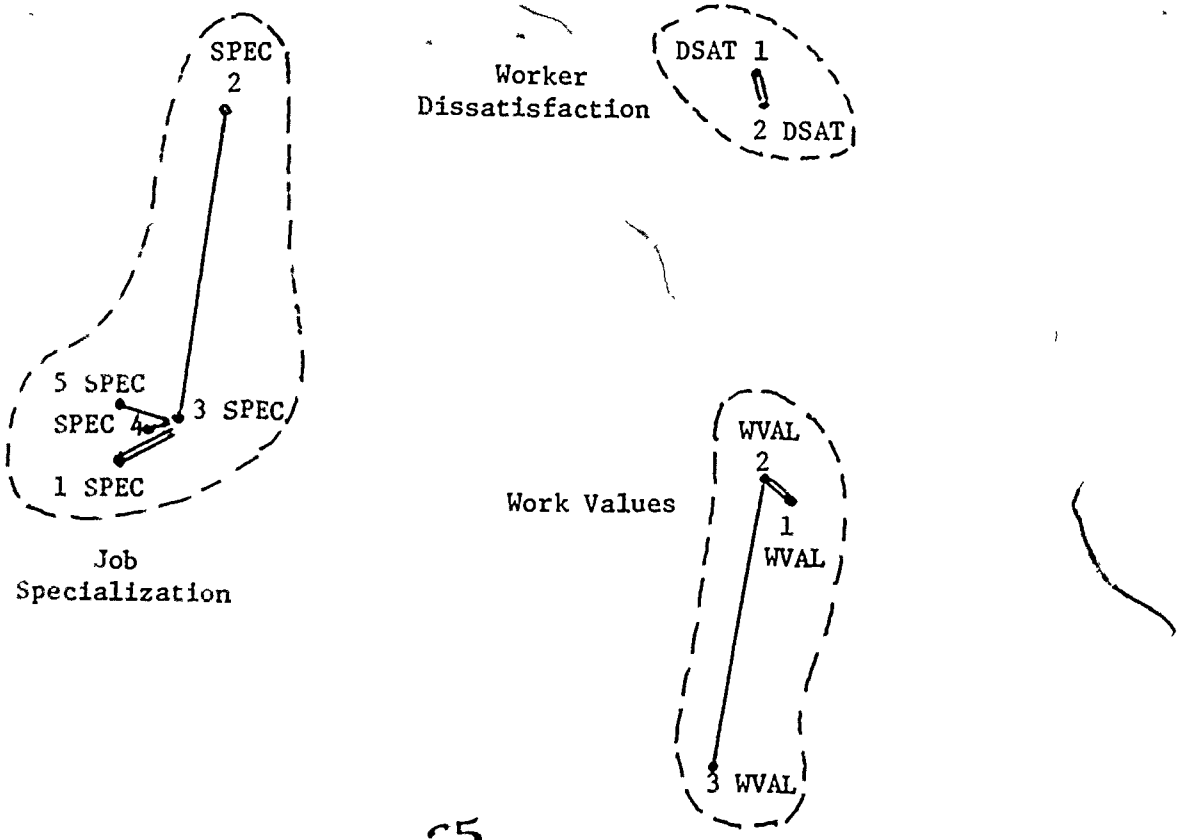

TABLE 3
THIRTY OVERLAPPING TESTS OF THE RELATIONSHIP BETWEEN JOB SPECIALIZATION AND WORKER DISSATISFACTION PARTITIONED ON WORK VALUES

Test	N	$\gamma_{ij} = \gamma_{ij \cdot k}$ ⊕[1] $\gamma_{ij \cdot \bar{k}}$	$\lvert\gamma_{ij \cdot k} - \gamma_{ij \cdot \bar{k}}\rvert$	Tests Support: "Direct" Model	"Specified" Model	Neither Model
SPEC/WVAL/DSAT: TOTAL[2]	2557	.19 = .17 ⊕ .15	.02	X		
SPEC 1/WVAL 1/DSAT 1	2511	.04 = .04 ⊖ -.09	.13			X
SPEC 1/WVAL 1/DSAT 2	2517	.03 = .04 ⊖ -.04	.08			X
SPEC 1/WVAL 2/DSAT 1	2504	.05 = .01 ⊖ .15	.14		C	
SPEC 1/WVAL 2/DSAT 2	2505	.04 = .04 ⊖ -.02	.06			X
SPEC 1/WVAL 3/DSAT 1	2447	.04 = .04 ⊖ .05	.01			X
SPEC 1/WVAL 3/DSAT 2	2447	.05 = .04 ⊖ .07	.03			X
SPEC 2/WVAL 1/DSAT 1	2652	.26 = .28 ⊕ .16	.12		A	
SPEC 2/WVAL 1/DSAT 2	2655	.14 = .10 ⊖ .18	.08			X[3]
SPEC 2/WVAL 2/DSAT 1	2647	.27 = .25 ⊕ .10	.15		A	
SPEC 2/WVAL 2/DSAT 2	2646	.15 = .11 ⊖ .12	.01			X
SPEC 2/WVAL 3/DSAT 1	2584	.27 = .29 ⊕ .18	.11		A	
SPEC 2/WVAL 3/DSAT 2	2582	.13 = .14 ⊖ .07	.07			X
SPEC 3/WVAL 1/DSAT 1	2635	.16 = .19 ⊖ -.01	.20		A	
SPEC 3/WVAL 1/DSAT 2	2641	.23 = .24 ⊖ .14	.10		A	
SPEC 3/WVAL 2/DSAT 1	2627	.15 = .10 ⊕ .10	neg.			X
SPEC 3/WVAL 2/DSAT 2	2627	.21 = .18 ⊖ .17	.01	X		
SPEC 3/WVAL 3/DSAT 1	2563	.15 = .15 ⊖ .17	.02	X		
SPEC 3/WVAL 3/DSAT 2	2563	.22 = .21 ⊖ .22	.01	X		
SPEC 4/WVAL 1/DSAT 1	2358	.11 = .14 ⊖ -.03	.17			X
SPEC 4/WVAL 1/DSAT 2	2362	.16 = .14 ⊖ .16	.02			X[3]
SPEC 4/WVAL 2/DSAT 1	2356	.11 = .11 ⊕ .06	.05			X
SPEC 4/WVAL 2/DSAT 2	2355	.15 = .14 ⊖ .18	.04			X[3]
SPEC 4/WVAL 3/DSAT 1	2301	.10 = .13 ⊖ -.02	.15			X
SPEC 4/WVAL 3/DSAT 2	2302	.17 = .17 ⊖ .16	.01	X		
SPEC 5/WVAL 1/DSAT 1	2627	.12 = .19 ⊖ -.11	.30		A	
SPEC 5/WVAL 1/DSAT 2	2632	.14 = .15 ⊖ .04	.11		A	
SPEC 5/WVAL 2/DSAT 1	2624	.13 = .16 ⊖ -.11	.27		A	
SPEC 5/WVAL 2/DSAT 2	2623	.16 = .17 ⊖ .07	.10		A	
SPEC 5/WVAL 3/DSAT 1	2567	.10 = .14 ⊖ -.05	.19			X
SPEC 5/WVAL 3/DSAT 2	2565	.14 = .18 ⊖ -.02	.20		A	
		Totals:		4	11	15

[1] Plus signs are circled to indicate that these are weighted sums. Also note that cross-product terms ($\gamma_{ij \cdot DIF\ k}$) are omitted from the table. A complete set of results, including weights and differentials, may be obtained by writing to Dr. Thomas C. Taveggia, Department of Sociology, Illinois Institute of Technology, Chicago, Illinois 60616.

[2] This row presents the results of a combined scale analysis. In constructing the scales, each item was weighted using sequential integers and the resulting scores were summed for each respondent on each scale. These scale scores were then dichotomized in accordance with approximately equal splits on the scale marginals.

[3] For these comparisons, $\lvert\gamma_{ij \cdot k} - \gamma_{ij \cdot \bar{k}}\rvert < .10$, but $\gamma_{ij \cdot k} < .15$ while $\gamma_{ij \cdot \bar{k}} > .15$.