





## Faculty Working Papers

SOME PERSONALITY DETERMINANTS OF THE EFFECTS  
OF PARTICIPATION: A FURTHER INVESTIGATION

Ahmed A. Abdel-Halim  
and  
Kendrith M. Rowland

#246

College of Commerce and Business Administration  
University of Illinois at Urbana-Champaign



FACULTY WORKING PAPERS

College of Commerce and Business Administration

University of Illinois at Urbana-Champaign

May 12, 1975

SOME PERSONALITY DETERMINANTS OF THE EFFECTS  
OF PARTICIPATION: A FURTHER INVESTIGATION

Ahmed A. Abdel-Halim  
and  
Kendrith M. Rowland

#246



SOME PERSONALITY DETERMINANTS OF THE EFFECTS OF  
PARTICIPATION: A FURTHER INVESTIGATION

AHMED A. ABDEL-HALIM  
Illinois State University

KENDRITH M. ROWLAND  
University of Illinois at Urbana-Champaign

It has long been assumed that the effects of a participative versus non-participative managerial style would depend on the kind of people being supervised. Vroom (1960) hypothesized, for example, that *participation in decision-making would have a more positive effect on the attitudes (or satisfaction) and performance (or effectiveness) of subordinates with strong than weak independence needs and a less positive effect on authoritarians than equalitarians.* The hypothesis assumed that participation in decision-making would have a generally positive incentive value for all subordinates. Subsequent research done by Vroom (1960) supported that hypothesis. More recently, Tosi (1970) attempted to replicate Vroom's study, but he obtained contradictory findings and concluded that "until more evidence is obtained, it is best that personality determinants remain 'hypothesized' with respect to their effects on participation (p. 98)."

The research presented in this paper is a further replication of Vroom's study. Considering Tosi's (1970) contradictory findings, the results of the present study would serve to swing the weight



Digitized by the Internet Archive  
in 2012 with funding from  
University of Illinois Urbana-Champaign



of evidence either in support of Vroom's or Tosi's findings and suggest possible alternative approaches to future research. In this research, as in Tosi's, the research method used in the original study was closely followed. Some of the instruments used were very similar, as were the analytical methods employed. However, the samples and the organizations in which the research was carried out were quite different.

### Method

#### Subjects

The sample in the present study consisted of 106 first, second, and third line managers of a large, retail drug company in the Midwest. The subjects included 7 district managers, 40 store managers, and 59 assistant managers. A district manager typically supervised between 10 to 15 store managers. A store manager, assisted by one or two assistant managers, was in charge of store operations. Other personnel in the store included a number of pharmacists, cosmeticians, management trainees, and clerks. Each subject was asked to fill out a questionnaire (in the presence of the senior author) that included the measurement instruments used in the study.

#### Measurement Instruments

Participation in decision-making was measured using the following three items from the *Psychological Participation Index* developed by Vroom (1960):

1. In general, how much say or influence do you have on what goes on in your store?



2. Do you feel you can influence the decisions of your immediate superior regarding things about which you are concerned?
3. Does your immediate superior ask your opinion when a problem comes up that involves your work?

Each of these questions, designed to measure the extent to which the individual felt that he influenced *joint* decisions made with his superior, was answered by checking the most applicable answer on a six-point scale. A total score was obtained for each individual by summing the scores for the three items. Vroom and Tosi used all four items of the index and answers were checked on a five-point scale. In both Tosi's and the present study, the wording of certain items was slightly changed to fit the work situation.

Measures of two personality characteristics were used: *need for independence* and *authoritarianism*. Vroom (1960) used a 16-item measure of need for independence developed by Tannenbaum and Allport (1956). A shortened 8-item version of this measure was proposed by Vroom. Scores on the short form were found to correlate .86 with scores on the long form. The short form was used in the present study. Tosi used seven items from the short form.

Vroom (1960) also used 25 items drawn from Forms 40 and 45 of the F-scale (Adorno, *et al.*, 1950) to measure authoritarianism. In the present study, the same 25-item instrument was used. Tosi used a shortened 13-item version of the authoritarianism scale. In both the need for independence and authoritarianism measures, each item required the subject to check one of five alternatives.



Vroom (1960) reported a correlation of  $-.11$  between the two measures for 107 subjects. The correlation in the present study was  $-.14$ . This suggested again that the two personality characteristics were relatively independent.

Vroom's original study and Tosi's replication examined the effects of participation and personality characteristics on two criterion variables: *attitudes toward the job* and *job performance (or effectiveness)*. In the present study, the Work Itself and Supervisor subscales of the Job Descriptive Index (JDI) developed by Smith, Kindall and Hulin (1969) were used to measure attitudes toward the job. Vroom (1964) has described the JDI as "without doubt the most carefully constructed measure of job satisfaction in existence today (p. 100)." These two JDI subscales were considered comparable to the 3-item scale used by Vroom and Tosi.

Supervisory ratings were used in the present study to measure subordinates' job performance. Each subject was rated by his immediate supervisor on the following five items:

1. Quality of work performance.
2. Amount of effort expended on the job.
3. Productivity on the job.
4. Speed on the job.
5. Overall work performance.

The choice of the specific items in the above list was influenced by performance rating lists developed by Porter and Lawler (1968) and Stogdill (1965). The raters were asked to describe how well the particular subordinate was doing on each of the five items. Ratings ranged from very poorly (1) to very well (5). The first four items were grouped together to represent a measure of



"Effective Performance." This provided two subscales of job performance. Vroom used supervisory ratings to measure job performance, while Tosi used a measure of effectiveness based on the most recent year's return on investment for the units participating in the study.

### Procedure

Relationships between the several variables were examined in the same manner as in the previous studies. First, participation in decision-making was correlated with the criterion variables for the entire sample. Then, the sample was broken down into approximately equal groups composed of those scoring high, moderate, and low on each of the two personality characteristics. Psychological participation was correlated with job satisfaction and performance within each of these six groups. In order to determine the relationship of participation as perceived by individuals with different personality characteristics to their job attitudes and performance, differences between correlations in each pair of groups for each personality variable were then assessed using the t-test.\* Furthermore, to test the relationship

---

\*The significance of the difference between any two correlation coefficients was tested using the following method: The statistical hypothesis to be tested was that two sample values of  $r$  were drawn at random from the same population. The  $r$  values were first converted to  $z$  values. The difference between the two  $z$  values had a mean square ( $\sigma^2 z_1 - z_2$ ) of  $1/n_1 - 3 + 1/n_2 - 3$ , where  $n_1$  and  $n_2$  referred to the sub-sample size in the two groups. The test was completed by calculating the ratio of the difference of the  $z$ 's to the standard error of this difference; that is,  $t = z_1 - z_2 / \sigma z_1 - z_2$ . The  $t$  values were then checked for statistical significance. (For a further discussion of this method, see Snedecor and Cochran, 1967)





of participation to the criterion variables using the two personality characteristics simultaneously as intervening variables, the distributions on the latter variables were dichotomized near the median and grouped into combinations of highs and lows. Correlations were then computed between participation and attitudes toward the job and job performance for the four resulting groups. Differences between correlations for each pair of groups were similarly assessed using the t-test.

### Results

Tables 1 and 2 below include data from the three studies relevant to the testing of the hypothesis advanced by Vroom (1960). As Table 1 indicates, the correlations between psychological participation and measures of job satisfaction for all subjects in the three studies were positive and statistically significant (at the .01 level). These results suggest that participation has a generally positive relationship to subordinates' job satisfaction.

#### Insert Table 1 About Here

Correlations between the measures of participation and job satisfaction for the high and low groups on each personality variable were significantly different and in the predicted direction in Vroom's study, but not in Tosi's or ours. In the present study, the differences between the magnitude of the correlations for high and low need for independence groups and for high and low authoritarian groups on the JDI Work Itself and Supervisor subscales were



not statistically significant (at the .05 level). When the two personality variables were combined, the results relating to the JDI Supervisor subscale were in the predicted direction, but again not statistically significant (at the .05 level). The results for the JDI Work Itself subscale were contrary to expectations; they too were not statistically significant.

Data relevant to the testing of the hypothesis considering job performance as the criterion variable are presented in Table 2.

Insert Table 2 About Here

In Vroom's study and ours, psychological participation correlated positively with measures of job performance for all subjects, suggesting that participation has a generally positive relationship to subordinates' job performance. Psychological participation, however, did not correlate positively with the return-on-investment measure used in Tosi's study.

Support for the hypothesis that the relationship of participation to job performance (or effectiveness) was determined by the strength of subordinates' need for independence and authoritarianism was provided in Vroom's study but not in Tosi's or ours. In the present study, comparisons of correlations between participation and the effective and overall work performance subscales for high and low need for independence groups were contrary to expectations, but not statistically significant. The differences between the magnitude of the correlations for high and low authoritarian groups on the two performance subscales were statistically



significant ( $t=2.03$  and  $2.15$ ,  $p < .05$ ); they were, however, opposite to the direction predicted by the hypothesis. When the two personality variables were used simultaneously, no significant differences between correlations for different groups were obtained.

### Discussion

The results of the present study are in clear contradiction to those obtained by Vroom (1960). In both Tosi's (1970) and the present study, differences in subordinates' need for independence and authoritarianism did not produce the predicted differences in the relationship between participation in decision-making and job satisfaction and performance. The results of the two replications, therefore, raise serious questions regarding the generalizability of Vroom's findings.

Tosi indicated that his failure to corroborate Vroom's findings might, in part, be due to methodological differences between the two studies. Admittedly, similar differences existed between Vroom's study and ours. If we accept the idea that differences in the findings of the original study and the two replications were due to methodological differences, then conclusions drawn from Vroom's findings should be restricted. In fact, a statement to this effect was made by Vroom (1960): "...our conclusions will have to be restricted to the two plants that we studied (p. 23)." Unfortunately, many researchers have overlooked this point and the interpretation of Vroom's findings has been frequently overextended.



In Vroom's study, as well as the two replications, categories of personality variables were created presumably to represent distinctly different personality dimensions. This was done by arbitrarily trichotomizing these variables in such a way that the groups in the three categories were approximately equal. This procedure created high, moderate, and low scoring groups on need for independence and authoritarianism. Subjects in the high and low scoring groups were assumed to represent two different populations and, consistent with the hypothesized results, different relationships between participation and the criterion variables were expected. If, however, a majority of the subjects scored closer to the cutting points with only a few subjects scoring at the extreme ends of the scale, and the range of the moderate scoring group was very small (as it was in Vroom's and our study), then the high and low scoring groups, in reality, might not have distinctly different personality characteristics.\*

---

\*The cutting points on the two personality variables in Vroom's and our study were as follows (on a five-point scale):

		<u>Vroom's Study</u>	<u>Present Study</u>
Need Independence:	High	3.19 and above	3.37 and above
	Moderate	2.94 - 3.12	3.00 - 3.25
	Low	2.87 and below	2.87 and below
Authoritarianism:	High	3.32 and above	3.00 and above
	Moderate	3.00 - 3.28	2.60 - 2.96
	Low	2.96 and below	2.56 and below

Information concerning Vroom's study was provided through personal communication. There is indication that, in our sample as compared to Vroom's, the strength of need for independence tended to be higher while that of authoritarianism tended to be lower.





To avoid this problem, we recommend, among other things, that the relationship of participation and personality variables to criterion variables be experimentally studied in future research. Through experimentation, the direction of causality in the personality-participation-effects relationship can be determined. One should not, of course, make inferences about the "effects" of participation or personality variables on the basis of simple correlational analyses. If survey research is a practical necessity, however, the intervening variables should be trichotomized to include the scores of only the highest and lowest scoring subjects (in essence, the creation of a much wider gap between high and low scoring groups), which might in turn require the necessity of securing a larger subject pool.

Only two personality characteristics, need for independence and authoritarianism, were suggested by Vroom and used in his study, Tosi's, and ours. The choice of these two characteristics was somewhat arbitrary, and perhaps other personality dimensions might be equally associated with participation opportunities. In other words, there is no *a priori* reason to believe that these two personality characteristics should account for an especially large portion of the total variance in the personality-participation-effects relationship (Lowin, 1968).

The failure to corroborate Vroom's findings might also suggest the need to investigate the underlying propositions and the situations in which they were tested (Zetterberg, 1965). A review of studies using need for independence and/or authoritarianism-like variables provides mixed support for the hypothesized



personality-participation-effects relationship. Support for this relationship can be found, for example, in a series of seven studies by Campion (1968), Litwin & Stringer (1968), McCurdy & Eber (1953), Ross & Zander (1957), Sanford (1950), Tannenbaum (1954), and Vroom (1960). On the other hand, no support for this relationship was found in a series of five studies by Dalton, Barnes & Zalesnik (1970), Vroom & Mann (1960), Haythorn, *et al.* (1956), Searfoss & Monczka (1973), and Tosi (1970). Obviously, the evidence is not conclusive.

In most of these studies, the need for independence and authoritarianism were intended as measures of personality type, and data were obtained by asking individuals about their attitudes toward certain broad societal and relational issues. The question which may be raised is: Can subordinates who hold generally authoritarian views have expectations for participating in decision-making? It may be argued that expectations are more related to the incentive value of the object (i.e., participation) than are personality characteristics. The expectations which are relevant here are those related not only to the participation opportunities in the work situation, but also to the amount of participation considered appropriate by participants. Studies have shown, for example, that participation could be effective to the extent that participants perceived the opportunity to participate as legitimate or relevant to the nature of their work (French, Israel & As, 1960). This suggests that both personality characteristics and expectations regarding participation should be simultaneously studied in future research.



No attempt was made in Vroom's study or the two replications to separate psychological participation from the other aspects of the decision-making process. Strauss (1963) has identified three different forms of superior-subordinate decision making. According to him, "decisions can be divided among (1) those made by the superior (direction), (2) those made in some sense jointly by the superior and the subordinate (consultation), and (3) those which the superior permits the subordinate to make on his own (delegation) (p. 58)." Consultation here refers to the concept of participation when it is narrowly defined, as it was in the three studies, while delegation refers to a higher degree of autonomy in making decisions. Therefore, direction and delegation, as identified by Strauss (1963), were excluded from the definition and measurement of psychological participation. In future research, it seems the entire range of the decision-making process should be considered. Some of the decision-making measures developed by Blankenship & Miles (1968), Heller & Yukl (1969), and Ritchie & Miles (1970) could be used to measure this alternative conceptualization of participation.

Our discussion thus far suggests that the interactive effects of personality characteristics and participation when narrowly defined (i.e., in terms of influence in *jointly* made decisions) should be examined in combination with the degree of perceived autonomy or structure in the work environment. It should be noted, however, that the degree of perceived autonomy (or structure) in the work environment may be reflective of interpersonal factors



(i.e., the superior-subordinate relationship) or the nature of the task to be performed. This distinction is important since differential effects may be produced by each set of factors. If an individual with a strong need for independence, for example, had a relatively nonstructured or nonroutine job, but perceived his superior as centralizing most of the decision-making power, he probably would not be very satisfied with his work or the supervisor if the latter asked his opinion about certain matters related to the task. If, on the other hand, an individual felt that he lacked autonomy because of the nature of the task (i.e., it was highly mechanized or routine), then he might find participation in joint decision-making rewarding since this would give him some feeling of importance on the job.

Furthermore, we are inclined to believe that a participative managerial style may have greater influence on one's attitudes toward selected aspects of his job. The theory so far seems to assume, however, that participation in decision-making by different individuals will differentially influence their attitudes toward their superiors and that these attitudes, in turn, will be carried over (or generalized) to both their attitudes toward the work itself and their job performance. The research done by Porter & Lawler (1968) and others raises serious doubts about this oversimplified assumption. Instead, participation in decision-making may have greater influence on subordinates' attitudes toward their supervisors, but not necessarily toward the work itself. In other words, participation may have a "selective" rather than a





"generalized" effect on attitudes toward various aspects of the job. The results of our study (Table 1) tend to support this proposition.

Additional evidence concerning the various points raised here must rest with future research. If it is assumed, however, that consumer credit and retailing tasks (as in Tosi's study and ours) have an inherently higher degree of autonomy (or are less structured) as compared with the package delivery task (performed by the subjects in Vroom's study), this difference in the work environment might explain some of the differences in the results obtained.

#### Summary

Results obtained by Vroom (1960) concerning the relationship between participation in decision-making as perceived by subordinates with different degrees of need for independence and authoritarianism and their job satisfaction and performance were not replicated in the present study and in a study conducted by Tosi (1970). Serious questions were raised, therefore, regarding the generalizability of Vroom's findings.

Differences in the samples, organizations, and research methods among the three studies were acknowledged. By themselves, however, these differences do not provide sufficient explanation for the failure to corroborate the findings of the original study. For future research, an alternative conceptualization of participation was suggested to take into account the entire range of the



superior-subordinate decision-making process. In addition, the combined effect of personality characteristics and subordinate expectations regarding participation opportunities and the amount of participation should be considered. Alternative methods were also proposed for testing the propositions about the personality-participation-effects relationship.



References

- Adorno, T., Frenkel-Brunswik, E., Levinson, D. J., and Sanford, R. N. *The Authoritarian Personality*. New York: Harper and Brothers, 1950.
- Blankenship, L. V. and Miles, R. E. Organization Structure and Managerial Decision Behavior. *Administrative Science Quarterly*, 1968, 13, 106-120.
- Campion, J. R., Jr. Effects of Managerial Style on Subordinates' Attitudes and Performance in a Simulated Organization Setting. Unpublished Ph.D. Dissertation, University of Minnesota, 1968.
- Dalton, G. W., Barnes, L. B., and Zalesnik, A. *The Distribution of Authority in Formal Organizations*. Boston: Division of Research, Graduate School of Business Administration, Harvard University, 1968.
- French, J. R., Jr., Israel, J., and As, D. An Experiment on Participation in a Norwegian Factory: Interpersonal Dimensions of Decision-Making. *Human Relations*, 1960, 13, 3-19.
- Haythorn, W., Haefner, D., Langham, P., Couch, A., and Carter, L. The Effects of Varying Combinations of Authoritarian and Equalitarian Leaders and Followers. *Journal of Abnormal and Social Psychology*, 1956, 23, 210-219.
- Heller, F. A. and Yukl, G. Participation, Managerial Decision-Making, and Situational Variables. *Organizational Behavior and Human Performance*, 1969, 4, 227-241.
- Litwin, G. H. and Stringer, R. A., Jr. *Motivation and Organizational Climate*. Boston: Division of Research, Graduate School of Business Administration, Harvard University, 1968.
- Lowin, A. Participative Decision Making: A Model, Literature Critique, and Prescriptions for Research. *Organizational Behavior and Human Performance*, 1968, 3, 68-106.
- McCurdy, H. G. and Eber, H. W. Democratic versus Authoritarian: A Further Investigation of Group Problem-Solving. *Journal of Personality*, 1953, 22, 258-269.
- Porter, L. W. and Lawler, E. E. *Managerial Attitudes and Performance*. Homewood, Illinois: Dorsey-Irwin, 1968.
- Ritchie, J. B. and Miles, R. E. An Analysis of Quantity and Quality of Participation as Mediating Variables in the Participative Decision Making Process. *Personnel Psychology*, 1970, 23, 347-360.



- Ross, I. C. and Zander, A. Need Satisfaction and Employee Turnover. *Personnel Psychology*, 1957, 10, 327-338.
- Sanford, F. H. *Authoritarianism and Leadership*. Philadelphia: Institute for Research in Human Relations, 1950.
- Searfoss, D. G. and Monczka, R. M. Perceived Participation in the Budget Process and Motivation to Achieve the Budget. *Academy of Management Journal*, 1973, 16, 541-554.
- Smith, R. C., Kendall, L. M., and Hulin, C. L. *The Measurement of Satisfaction in Work and Retirement*. Chicago: McNally, 1969.
- Snedecor, G. W. and Cochran, W. G. *Statistical Methods*. (6th Edition) Ames, Iowa: The Iowa State University Press, 1967.
- Stogdill, R. *Managers, Employees, Organizations: A Study of 27 Organizations*. Research Monograph No. 125, Bureau of Business Research, The Ohio State University, 1965.
- Strauss, G. Some Notes on Power-Equalization. In H. J. Leavitt (Ed.), *The Social Science of Organizations*. Englewood Cliffs, New Jersey: Prentice-Hall, 1963, 41-84.
- Tannenbaum, A. The Relationship Between Personality and Group Structure. Unpublished Ph.D. Dissertation, Syracuse University, 1954.
- Tannenbaum, A. and Allport, F. H. Personality Structure and Group Structure: An Interpretative Study of Their Relationship Through an Event-Structure Hypothesis. *Journal of Abnormal and Social Psychology*, 1956, 53, 272-280.
- Tosi, H. A Reexamination of Personality as a Determinant of the Effects of Participation. *Personnel Psychology*, 1970, 23, 91-99.
- Vroom, V. H. *Some Personality Determinants of the Effects of Participation*. Englewood Cliffs, New Jersey: Prentice-Hall, 1960.
- Vroom, V. H. and Mann, F. Leader Authoritarianism and Employee Attitudes. *Personnel Psychology*, 1960, 13, 125-139.
- Vroom, V. H. *Work and Motivation*. New York: Wiley, 1964.
- Zetterberg, H. L. *On Theory and Verification in Sociology*. (3rd Edition) New Jersey: The Bedminster Press, 1965.





TABLE I

Relationship Between Participation and Job Satisfaction for Persons With Different Personality Characteristics From the Three Studies

Personality Characteristics	Vroom's Study#		Tosi's Study#		Present Study	
	N	Attitude Toward Job	N	Attitude Toward Job	JDI Work Itself	JDI Supervisor
Total Group	108	.27**	488	.44**	.32**	.54**
1. Hi Need Independence	38	.51**	151	.46**	.27	.53**
2. Mo Need Independence	32	.25	193	.45**	.23	.67**
3. Lo Need Independence	38	-.04	144	.39**	.47**	.24
diff (1,3) t =		2.40**'		'	'	1.35'
diff (1,2) t =		1.15'		'	'	1.06
diff (2,3) t =		1.15'		'	1.10	2.39**'
1. Lo Authoritarian	39	.50**	150	.43**	.46**	.41**
2. Mo Authoritarian	34	.35*	178	.42**	.03	.62**
3. Hi Authoritarian	34	.09	160	.45**	.53**	.58**
diff (1,3) t =		1.77*'		'	'	1.14'
diff (1,2) t =		'		'	1.88*'	'
diff (2,3) t =		1.04'		'	2.22*	'



TABLE I (continued)

Personality Characteristics	Vroom's Study#		Tosi's Study#		Present Study		
	N	Attitude Toward Job	N	Attitude Toward Job	N	JDI Work Itself	JDI Supervisor
1. Hi Need Independence & Lo Authoritarian	29	.73**	139	.48**	26	.05	.65**
2. Hi Need Independence & Hi Authoritarian	26	.25	136	.42**	22	.40*	.53**
3. Lo Need Independence & Lo Authoritarian	26	.12	98	.32**	26	.44**	.40*
4. Lo Need Independence & Hi Authoritarian	26	.04	115	.50**	32	.41*	.57**
diff (1,3) t =		2.79**'		'		1.45	1.21'
diff (1,2) t =		2.31**'		'		1.20	'
diff (1,4) t =		3.07**'		'		1.37	'
diff (2,3) t =		+		+		+	+
diff (2,4) t =		'		'		'	'
diff (3,4) t =		'		'		'	'

\*\* p < .01

\* p < .05

' In the predicted direction; t ratios over 1.00 are shown.

+ No direction was predicted for this difference.

# Taken from Vroom (1960), pages 36 and 38, and Tosi (1970), page 95.



TABLE 2

Relationship Between Participation and Performance Criteria for Persons With  
Different Personality Characteristics From the Three Studies

Personality Characteristics	Vroom's Study			Tosi's Study#			Present Study		
	N	Performance	Summary Appraisal	N	Return on Investment	N	Effective Performance	Work Performance	Overall
Total Group	96	.21*	.20*	488	.00	106	.28**		.44**
1. Hi Need Independence	33	.51**	.42*	144	-.01	36	.27		.35*
2. Mo Need Independence	28	.18	.33*	193	.03	38	.50**		.45**
3. Lo Need Independence	35	.04	.00	151	-.01	32	.29		.49**
diff (1,3) t =		1.98**	1.61**						
diff (1,2) t =		1.31'	'				1.10'		
diff (2,3) t =			1.26'				1.00		
1. Lo Authoritarian	32	.33*	.26	150	.03	37	.11		.23
2. Mo Authoritarian	33	.24	.18	178	.08	32	.38*		.34*
3. Hi Authoritarian	30	-.13	.14	160	.00	37	.54**		.64**
diff (1,3) t =		1.68**	'				2.03*		2.15*
diff (1,2) t =		'	'				1.15		
diff (2,3) t =		1.32'	'						1.60



TABLE 2 (continued)

Personality Characteristics	Vroom's Study#		Tosi's Study#		Present Study		Overall Work Performance
	N	Overall Work Performance	N	Return on Investment	N	Effective Performance	
1. Hi Need Independence & Lo Authoritarian	26	.34*	139	.00	26	.26	.34
2. Hi Need Independence & Hi Authoritarian	24	.13	136	.06	22	.42*	.38
3. Lo Need Independence & Lo Authoritarian	22	.03	98	-.02	26	.14	.34
4. Lo Need Independence & Hi Authoritarian	23	.12	115	-.06	32	.61**	.61**
diff (1,3) t =		1.03'					
diff (1,2) t =							
diff (1,4) t =							
diff (2,3) t =							
diff (2,4) t =							
diff (3,4) t =							
						1.58	1.26
							1.06
							1.25

\*\* p<.01

\* p<.05

' In the predicted direction; t ratios over 1.00 are shown.  
+ No direction was predicted for this difference.

# Taken from Vroom (1960), pages 43 and 44, and Tosi (1970), page 96.







UNIVERSITY OF ILLINOIS-URBANA



3 0112 060296693