

AD 729241

ORGANIZATIONAL RESEARCH

DEPARTMENT OF PSYCHOLOGY • UNIVERSITY OF WASHINGTON, SEATTLE, WASHINGTON

INSTRUMENTALITY THEORY PREDICTIONS OF
STUDENTS' ATTITUDES TOWARDS BUSINESS AND
THEIR CHOICE OF BUSINESS AS AN OCCUPATION
Terence R. Mitchell and Barrett W. Knudsen

University of Washington
Seattle, Washington

Technical Report 71-27

July, 1971

D
REF
C

Reproduced by
NATIONAL TECHNICAL
INFORMATION SERVICE
Springfield, Va. 22151

D D C
RECEIVED
SEP 23 1971
RECEIVED
B

DISTRIBUTION STATEMENT A

Approved for public release;
Distribution Unlimited

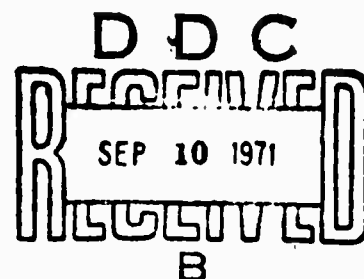
ORGANIZATIONAL RESEARCH
DEPARTMENT OF PSYCHOLOGY
UNIVERSITY OF WASHINGTON
SEATTLE, WASHINGTON

INSTRUMENTALITY THEORY PREDICTIONS OF
STUDENTS' ATTITUDES TOWARDS BUSINESS AND
THEIR CHOICE OF BUSINESS AS AN OCCUPATION
Terence R. Mitchell and Barrett W. Knudsen

University of Washington
Seattle, Washington

Technical Report 71-27

July, 1971



ARPA Order 454, Contract N00014-67-A-0103-0013
Advanced Research Projects Agency, Department of the Navy

REPRODUCTION IN WHOLE OR IN PART IS PERMITTED
FOR ANY PURPOSE OF THE UNITED STATES GOVERNMENT

DISTRIBUTION OF THIS DOCUMENT IS UNLIMITED

INSTRUMENTALITY THEORY PREDICTIONS OF STUDENTS' ATTITUDES TOWARDS
BUSINESS AND THEIR CHOICE OF BUSINESS AS AN OCCUPATION

Terence R. Mitchell and Barrett W. Knudsen

University of Washington

Abstract

Both choice of and attitude towards business as an occupation were predicted from the components of instrumentality theory. This theory suggests that evaluations and choices are determined by the instrumentality of the object or choice leading to certain outcomes weighted by the evaluations of the outcomes. The results supported this hypothesis. There was also a strong indication that the reasons for not choosing business were more related to the instrumentality component of the theory than to the evaluation component. Students choosing other occupations do so because they believe that business will not be instrumental for attaining valued goals rather than because of differences in the evaluation of these goals.

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author) Organizational Research Department of Psychology, University of Washington Seattle, Washington 98105		2a. REPORT SECURITY CLASSIFICATION Unclassified	
		2b. GROUP	
3. REPORT TITLE Instrumentality Theory Predictions of Students' Attitudes Towards Business and Their Choice of Business as An Occupation			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates) Technical Report 71-27			
5. AUTHOR(S) (First name, middle initial, last name) Terence R. Mitchell and Barrett W. Knudsen			
6. REPORT DATE July, 1971		7a. TOTAL NO. OF PAGES 23	7b. NO. OF REFS 36
8a. CONTRACT OR GRANT NO. NO0014-67-A-0103-0013		9a. ORIGINATOR'S REPORT NUMBER(S) TR 71-27	
b. PROJECT NO. 177-473		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
c.			
d.			
10. DISTRIBUTION STATEMENT Distribution of this document is unlimited.			
11. SUPPLEMENTARY NOTES None.		12. SPONSORING MILITARY ACTIVITY Advanced Research Projects Agency, U.S.N.	
13. ABSTRACT <p>Both choice of and attitude towards business as an occupation were predicted from the components of instrumentality theory. This theory suggests that evaluations and choices are determined by the instrumentality of the object or choice leading to certain outcomes weighted by the evaluations of the outcomes. The results supported this hypothesis. There was also a strong indication that the reasons for not choosing business were more related to the instrumentality component of the theory than to the evaluation component. Students choosing other occupations do so because they believe that business will not be instrumental for attaining valued goals rather than because of differences in the evaluation of these goals.</p>			

14 KEY WORDS	LINK A		LINK B		LINK C	
	ROLE	WT	ROLE	WT	ROLE	WT
Instrumentality theory						

INSTRUMENTALITY THEORY PREDICTIONS OF STUDENTS' ATTITUDES TOWARDS
BUSINESS AND THEIR CHOICE OF BUSINESS AS AN OCCUPATION¹

Terence R. Mitchell and Barrett W. Knudsen

University of Washington

A Lou Harris poll published a few years ago (Newsweek, 1966) reported that only 12% of the college students surveyed selected business as their first occupational choice. More recent investigations by Campbell (1969) and Lee (1970) have shown a decreasing interest in business by college students. The following research attempted to use an instrumentality theory approach (Vroom, 1964) to predict occupational choice and to discover why certain students select business as an occupation.

Instrumentality Theory

The basic concept of instrumentality theory is hedonistic; man attempts to maximize his pleasure. His behavior is seen as predictable from two variables: the degree to which the behavior is instrumental for the attainment of some outcome weighted by the evaluation of that outcome, summed over all outcomes. Symbolically,

$$B = \sum_{i=1}^n I_i V_i$$

where,

B = behavior

I_i = the probability of the act leading to the outcome (instrumentality)

¹Research for this paper was supported under ARPA Order 454, contract N00014-67-A-0103-0013 with the Advanced Research Projects Agency, U.S. Navy (Fred E. Fiedler, Principal Investigator). We would like to thank Virgil Harder and Arthur Lumsdaine for their help in obtaining subjects and their thoughtful comments on the substantive issues involved in the study.

V_i = the evaluation of each outcome (valence)

n = the number of outcomes

The idea can be traced back to early Greek philosophers and is certainly not new in psychology (see Mitchell & Biglan, 1971, for a review). However, its use in the area of vocational psychology is relatively recent.

Vroom (1964) was the first to suggest that the theory could be used to predict occupational choice. In his review of the literature on choice, he distinguishes between one's evaluation of an occupation (an attitude), his choice of an occupation (a behavioral decision), and his actual attainment of the occupation. He further argues that both one's evaluation and choice of an occupation could be predicted from whether the individual thought that the occupation would assist in the attainment of a set of outcomes weighted by the evaluation of the outcomes. Some evidence has been presented supporting these ideas (Vroom, 1966; Vroom & Deci, 1971; Sheard, 1970; Huber, Daneshgar & Ford, 1971; Pieters, Hundert, & Beer, 1968). We will attempt to predict both the student's evaluation and choice of business as an occupation.

It should be mentioned that vocational research is not the only area in which support has been found for predicting both attitudes and choices from instrumentality/valence variables. Rosenberg (1965) and Fishbein (1965) have both presented data strongly supporting the idea that one's attitude is determined by the degree of linkage between the attitude object and related objects multiplied by the evaluation of these related objects. Also, the decision making theorists (e.g., Edwards, 1961; Becker & McClintock, 1967) have cited numerous studies where an

individual's choice could be predicted from instrumentality/valence constructs.

Modifications of the theory. Two minor modifications and extensions of the theory will be incorporated into the following investigation. First, there has recently been some evidence presented that suggests that certain classes of outcomes may be more related to behavior than others (Graen, 1969; Mitchell & Albright, 1971). These studies have pointed up the importance of intrinsic as opposed to extrinsic motivators. Intrinsic motivators are rewards that one obtains just by doing a job (e.g., self-expression), while extrinsic motivators are obtained from the organization (e.g., wages, status). Since numerous studies have indicated that business leads to extrinsic rewards, it is these outcomes which should contribute most to the total EIV score (Davis, 1964).

Also, in the Harris poll mentioned earlier (Newsweek, 1966) data were presented indicating that people felt American business should be concerned with the following social issues:

	<u>Per cent Agree</u>
Eliminating depression	92
Rebuilding cities	87
Aiding college education	83
Wiping out poverty	80
Eliminating race prejudice	83
Controlling pollution	90

believed that students are highly concerned about these issues and, therefore, included a set of four "social issue" outcomes along with our extrinsic and intrinsic ones. By breaking down the outcomes into three subgroups (i.e., extrinsic, intrinsic, and social) we could test

the degree to which the total score (IIV across all 12 outcomes) predicted attitudes and occupational choice as well as the contribution made by each subgroup. This distinction should help clarify why students choose or fail to choose business as an occupation.

A second modification of the theory has been suggested by Dulany (1967), Fishbein (1967), and Graen (1969). These authors argue that when the theory is used to predict behavior (as distinct from an attitude), it should incorporate information about the expectations of others. An individual behaves in a certain way not only because he believes that it will facilitate in the attainment of rewards, but also because it is expected by others. The reviews of the occupational choice literature also suggest that peer and parental expectations are important (Vroom, 1964; Crities, 1969; Hoppock, 1967). These variables were included in the theory in the following manner:

$$B = \sum_{i=1}^n I_i V_i + EX_p MC_p + EX_f MC_f$$

where,

B = behavior (e.g., occupational choice)

ΣIIV = the instrumentality/valence construct described earlier

EX_p = the perceived expectations of peers

MC_p = the motivation to comply with one's peers

EX_f = the perceived expectations of one's family

MC_f = the motivation to comply with one's family.

Both Dulany (1967) and Ajzen and Fishbein (1969) have presented data indicating that perceived expectations weighted by one's motivation to comply are significantly related to behavior.

A further consideration is that Vroom (1964) and others have cited information indicating that one's evaluation of an occupation is only moderately related to one's choice of an occupation. These theoretical and empirical distinctions between choice and evaluation would suggest that expectations would be more highly related to one's choice than to his evaluation of an occupation. Based upon these considerations it was hypothesized that:

1. Students' attitudes towards and choice of business as an occupation can be predicted from the following equation:

$$Att_{Bus}/Occ\ Ch = \sum_{i=1}^n I_i'V_i + EX_p'WC_p + EX_f'WC_f$$

- 1a. Students' total IIV score will be determined more by the ratings of extrinsic outcomes than by social or intrinsic ones.
- 1b. The expectations of others (peers and family) will be more positively related to the choice of business as an occupation than to students' attitudes about business.

Besides the general ability of the theory to predict attitudes and occupational choice, we were also interested in the specific reasons that students choose business as an occupation. Two samples of students were chosen for the following investigation: business students and psychology students. The psychology group was selected because of previous research that indicated that very few students aspiring to social science occupations end up in business (Davis, 1964, 1965). Thus, our total sample should include some students that accept and some that reject business as an occupation.

These groups should also differ in the way they respond to the components of the theory. Investigations have shown that business students,

for example, are more interested in extrinsic rewards than social science students while the latter are more concerned with intrinsic rewards (Davis, 1965). These considerations led us to the following hypotheses:

2. Business students will have more positive attitudes towards business and choose it more frequently as an occupation than psychology students.
- 2a. Business students will have significantly higher evaluations of extrinsic outcomes and lower evaluations of intrinsic outcomes than psychology students.
- 2b. Business students will perceive business as more instrumental for the attainment of all outcomes than will psychology students.

Method

Subjects. Questionnaires were sent by mail to 141 randomly selected male psychology majors and 141 randomly selected male business majors at the University of Washington. All students were in their junior year. Of the 129 responses, only 106 were fully answered. Fifty-three were from psychology and 53 from business. Although the response rate was rather low, it should be pointed out that the theory being tested is an individual one. We could think of no reason why those who responded would be more or less likely to support the theory than those who did not respond. However, the degree to which we can generalize the findings about the differences between psychology and business students is debatable.

Measures

A four-page questionnaire was constructed to measure the variables of interest. A cover sheet explaining our interest in the students'

"Attitudes toward American Business" and assuring the confidentiality of their response was attached. The questionnaire, the cover sheet, and a self-addressed return envelope were included in the information mailed to the student. The specific measurement scales for each variable are presented below.

Attitude toward business (Att_{Bus}). Each subject rated American business on three 7-point bipolar adjective scales (Osgood, Suci, & Tannenbaum, 1957, present good evidence for the reliability and validity of these scales). The scales used were: good-bad; pleasant-unpleasant; harmful-beneficial. The sum of the three scores was treated as the subject's attitude score.

Occupational choice (Occ Ch). A subject indicated whether he planned to go into business, some other occupation, or was undecided. The authors felt relatively confident about this measure due to recent investigations showing that this type of question has as good a predictive validity as most inventory measures (Whitney, 1969) and, in some cases, does twice as well (Holland & Lutz, 1968) as other techniques. The subject received a three for choosing business, a two for undecided, and a one for choosing another occupation.

Evaluation of outcomes (V_1). Each of the 12 outcomes was rated on the same three bipolar scales mentioned above. The social outcomes were "improving the environment, furthering peace, providing equal opportunity, and eliminating poverty." The extrinsic outcomes were "adequate salary, opportunity for promotion, job security and social status." The intrinsic outcomes were "autonomy, creativity, social interaction, and intellectual growth." The outcomes were listed in a random order and the average of the three scales was used as the evaluation measure.

Instrumentalities (I_1). The subject rated the degree to which he felt American business was instrumental for the attainment of each of the 12 outcomes on one 7-point bipolar scale (probable-improbable).

Expectations of others (EX_p and EX_f). The subject responded to "to what extent do your friends(or family) expect you to go into business?" on one 7-point bipolar scale (i.e., very much-very little).

Motivation to comply (MC_p and MC_f). Each subject indicated the importance of his friends' (or family's) expectations in determining his occupational choice. This rating was made on one 7-point bipolar scale (i.e., very important-very unimportant).

Results

Our first set of hypotheses concerned the support of the theory in general. A total ΣIV score was combined with the two expectation questions ($EX_p MC_p + EX_f MC_f$) and used to predict both occupational choice and attitude toward business. The multiple and the zero order correlation coefficients between the various components are presented in Table 1.

Insert Table 1 about here

An examination of this table shows that hypotheses 1 and 1b were clearly supported. More specifically, it appears that the theory does an extremely good job of predicting one's attitude toward business and a relatively good job of predicting his occupational choice. It is also clear that the ΣIV total accounts for almost all of the variance in the attitude score with expectations showing relationships of small magnitude. For the prediction of occupational choice, however, both the ΣIV total and the expectation components contribute about the same amount. There

TABLE 1

Multiple and Zero Order Correlations between the Components of the
Theory and Occupational Choice and Attitude toward Business

<u>Predictor</u>	<u>Att_{Bus}</u>	<u>Occ Ch</u>
$\Sigma IV_{total} + EX_p MC_p + EX_f MC_f$	70*	54*
ΣIV_{total}	69*	38*
$EX_p MC_p$	16	45*
$EX_f MC_f$	26*	43*

* $p < .01$

$\underline{n} = 106$

were no significant differences between these coefficients. However, the expectation components do appear to be more positively related to occupational choice than to one's attitude about business.

To test hypothesis 1a, the total ΣIV was broken into three scores reflecting the ΣIV for the four social, extrinsic and intrinsic outcomes for each subject. An analysis of variance indicated that these components contributed significantly different amounts to the total ΣIV score. Therefore, separate analyses of variance were conducted on the two components contributing to these scores: the instrumentality component and the valence component. These results are presented in Table 2.

 Insert Table 2 about here

Two implications are clear. First, the ΣIV extrinsic component contributes most to the total ΣIV score. Second, the instrumentality variable seems to be the major contributor to this difference. The implications are that students perceive business as more instrumental for the attainment of extrinsic outcomes than for social or intrinsic ones. These results are consistent with the earlier findings of Davis (1965) and LIAMA (1967) and support hypothesis 1a.

A theoretical point seems worthy of discussion here. Sheard (1970), Mikes and Hulin (1968), and Ewen (1967) have suggested that the instrumentality component alone is as good a predictor of attitudes as is the use of this component weighted by the evaluation of the outcomes. The correlation between the ΣI and Att_{Bus} was .70 for the current investigation, which provides some support for their argument (the r for ΣIV and Att_{Bus} was .69). However, as we shall see in our comparison of

TABLE 2

Contribution to the Total Σ IV Made by the Social,
Extrinsic, and Intrinsic Components

	Soc. (\bar{X})	Ext. (\bar{X})	Int. (\bar{X})	F	Sign
Σ IV	81.86	105.55	82.18	21.63	.001
I	14.43	19.65	14.70	51.46	.001
V	67.18	63.88	65.98	1.46	ns

Note: The valence score is a sum of three scales over four outcomes with a possible range of 12 to 84. To generate a Σ IV, the valence was divided by three before it was multiplied by the instrumentality scores in order to avoid an unequal weighting of the valence component. Each cell contains 106 observations.

business and psychology students, the valence information may be useful in a variety of ways.

Our second set of hypotheses had to do with the differences between students in psychology and business. On the criterion variables, t tests showed that business students had significantly more favorable attitudes towards business ($p < .01$) and a greater propensity to choose business as an occupation ($p < .01$). This result is hardly surprising. Only 7 of the 53 psychology students said they would go into business while only 5 of the 53 business students chose some other occupation. These results supported hypothesis 2.

Our further analysis of these data provided only partial support for hypothesis 2a, and strong support for hypothesis 2b. To test the differences in the evaluation of outcomes, t tests were computed for the differences in these scores for psychology and business students. The means and the t values are presented in Table 3.

Insert Table 3 about here

There is some support for the hypothesis that business students more positively evaluate extrinsic outcomes. Both promotion and status are extrinsic, statistically significant, and in the expected direction. Security, also extrinsic, was strongly in the expected direction though not statistically significant. We were, however, more struck by the similarity of evaluations across the other outcomes. The differences in attitude and choice could hardly be explained by the differences in the evaluations of any large class of outcomes.

TABLE 3

t Tests between Psychology and Business Students
for the Evaluation of Outcomes

<u>Outcome</u>	<u>Psych. (\bar{X})</u>	<u>Bus. (\bar{X})</u>	<u>t</u>	<u>Sign</u>
SOCIAL				
Environment	17.01	17.38	-.39	ns
Peace	16.87	17.62	-.75	ns
Equal Opportunity	16.49	16.94	-.48	ns
Eliminate Poverty	16.51	15.53	.99	ns
EXTRINSIC				
Salary	17.47	17.59	-.20	ns
Promotion	16.02	18.06	-3.16	.01*
Security	16.43	17.26	-1.02	ns
Status	11.43	13.49	-2.77	.01*
INTRINSIC				
Autonomy	15.53	13.92	1.78	ns
Creativity	17.53	17.36	.21	ns
Interaction	16.40	17.08	-.84	ns
Intellectual Growth	16.89	17.26	-.45	ns

*two-tailed test

n = 53 for each group

A more plausible explanation can be inferred from an observation of Table 4. Here we see that in 10 out of the 12 comparisons, business students saw business as more instrumental for the attainment of outcomes. The picture is rather clear. Business and psychology students differ in their attitudes and occupational choice not so much because of differences in values or goals but in the way they perceive they can attain those goals.

 Insert Table 4 about here

Discussion

In general, the support was good for an instrumentality approach to the evaluation and choice of an occupation. However, it was clear that the prediction of choice was lower in magnitude than the evaluation predictions. One possible reason for these less impressive findings deals with the scoring of the occupational choice question. You will recall that the scores on this variable were from one to three. The restriction in range of scores may have attenuated the correlations presented.

A second possible reason is that certain critical outcomes were not included. In the current study we generated the list of outcomes rather than gathering them from the subjects themselves. There is some precedence for this strategy (Porter & Lawler, 1968; Lawler & Porter, 1967; Graen, 1969). The alternative presents certain practical problems involving the acquisition of each subject's perceived outcomes and the construction of an individual questionnaire for each subject. (For a further discussion of these problems, see Mitchell, 1971). The theory does argue that an individual's own outcomes be used. Since there appear to

TABLE 4

t Tests between Psychology and Business Students
for the Instrumentality of Outcomes

<u>Outcome</u>	<u>Psych. (\bar{X})</u>	<u>Bus. (\bar{X})</u>	<u>t</u>	<u>Sign</u>
SOCIAL				
Environment	2.9	3.9	-3.27	.01*
Peace	3.0	4.9	-5.70	.01
Equal Opportunity	3.1	4.0	-2.89	.01
Eliminate Poverty	3.0	3.9	-2.77	.01
EXTRINSIC				
Salary	4.8	5.6	-3.17	.01
Promotion	4.8	5.5	-2.38	.05
Security	4.0	4.5	-1.57	ns
Status	4.6	5.6	-4.15	.01
INTRINSIC				
Autonomy	3.1	3.8	-2.62	.05
Creativity	2.9	3.9	-2.95	.01
Interaction	3.6	4.1	-1.95	ns
Intellectual Growth	3.4	4.7	-3.67	.01

*two-tailed tests

n = 53 for each group

be variables that are related to choice without being related to evaluations (i.e., expectations), it is certainly possible that critical outcomes were omitted (e.g., use of valued skills) and future investigations may examine this issue.

Two further criticisms of the study are worthy of discussion. First, since the results are correlational, the question of causality is important. More specifically, it is likely that many students who choose business come to see it as instrumental for the attainment of outcomes rather than the interpretation that the instrumentalities caused the choice. Manipulating these instrumentalities in a real-life setting would be difficult. However, some sort of time series design (Campbell & Stanley, 1963) might help provide support for one of these two alternatives.

A second problem is that weighting the instrumentality component of the equation by the valence of the outcomes doesn't increase our correlations. The instrumentality component does as well by itself. There are three reasons, however, why we do not feel that these results demand that the valence component be dropped from the theory. First, there may just have been little variance for the valences of the outcomes in this study. Differences in the EIV would have to be attributable to the instrumentality component. Second, the valence of the outcomes can provide useful information. And third, other studies have found this weighting to be useful (e.g., Dulany, 1967; Huber, Daneshgar, & Ford, 1971). Future investigations should pursue this problem further.

One final theoretical implication of the overall results should be mentioned. It was clear that peer and parental expectations contributed

more to the prediction of occupational choice than to the evaluation of the occupation. These results help to explain why choice and evaluation have not been highly correlated in other investigations (Williamson, 1939; Rosenberg, 1957). In the current investigation this correlation was .49 ($p < .01$) which, although significant, still leaves a lot of variance unaccounted for. It appears as if one's choice of an occupation is more influenced by others than his evaluation of it.

The results that compared students from psychology and business also raise some interesting points. The most striking of these findings was that students in business and psychology had relatively similar evaluations of various goals or outcomes. These results would suggest that just an investigation of values or interests would not differentiate the business student from the psychology student. There have been other studies which have also found values unrelated to choice (e.g., Ivey, 1963).

There are practical implications of these findings, as well as the theoretical ones. Those students who have chosen business as a career represent a valuable resource available to American business. One would expect business to be quite concerned about the size and quality of that resource.

This study suggests that students shun business not because of changing or different values, but because they perceive business as a poor instrument for achieving the values they do hold, for achieving the goals they aspire to. Even those who have chosen business as a career do not perceive it as being highly instrumental in achieving desired values. (Only 3 of the 12 average instrumentality scores for business students in Table 4 exceed 5.0 on a 7-point scale, and all 3 were extrinsic).

This implies that business either is out-of-step with the values held by students or has done a very poor job of publicizing its attempts to contribute to the social, intrinsic and extrinsic rewards of its employees and society. Certain companies such as Shell Oil and the Ford Motor Company have recently introduced TV advertisements stressing their concern for social issues, and we suspect that others will follow. Also, the recent work in organizational development and organizational change includes a heavy emphasis on intrinsic rewards.

We would also suggest that business attempt to influence the student's instrumentalities earlier in his college life by working more closely with the university. Seminars, debates, and work-study grants to professors and students alike (the 1966 Newsweek study suggests that students are primarily getting their information from professors and peers) are possibilities. To the extent that this "image building" reflects actual progress--past, present, and planned--and is an honest, candid attempt at informing the public of the social, intrinsic and extrinsic rewards provided by business to its employees and to society, we believe that it will go a long way toward decreasing the disparity between the perceived and the actual instrumentality of business for providing those rewards and should make business more attractive in the future.

References

- Ajzen, I., & Fishbein, M. The prediction of behavioral intentions in a choice situation. Journal of Experimental Social Psychology, 1969, 5, 400-416.
- Becker, G. M., & McClintock, C. G. Value: Behavioral decision theory. Annual Review of Psychology, 1967, 18, 239-286.
- Campbell, D. The vocational interests of Dartmouth College freshmen. Personnel and Guidance Journal, 1969, 47, 521-530.
- Campbell, D. T., & Stanley, J. C. Experimental and Quasi-Experimental Designs for Research. Chicago: Rand McNally, 1963.
- Crites, J. O. Vocational Psychology. New York: McGraw-Hill, 1969.
- Davis, J. A. Great Aspirations. Chicago: Aldine Publishing, 1964.
- Davis, J. A. Undergraduate Career Decisions. Chicago: Aldine, 1965.
- Dulany, D. E. Awareness, rules, and propositional control: A confrontation with S-R behavior theory. In D. Horton & T. Dixon (Eds.). Verbal Behavior and General Behavior Theory. Englewood Cliffs, N.J.: Prentice-Hall, 1967, 340-387.
- Edwards, W. Behavior decision theory. Annual Review of Psychology, 1961, 12, 473-498.
- Ewen, R. B. Weighting components of job satisfaction. Journal of Applied Psychology, 1967, 51, 68-73.
- Fishbein, M. A consideration of beliefs, attitudes, and their relationships. In I. D. Steiner & M. A. Fishbein (Eds.). Current Studies In Social Psychology. New York: Holt, Rinehart, and Winston, 1965, 107-120.
- Fishbein, M. Attitude and the prediction of behavior. In M. Fishbein (Ed.). Readings In Attitude Theory and Measurement. New York: Wiley, 1967, 477-492.

- Graen, G. Instrumentality theory of work motivation: Some experimental results and suggested modifications. Journal of Applied Psychology Monograph, 1969, 53 (Whole No. 2, Part 2).
- Holland, J. L., & Lutz, S. W. The predictive value of a students choice of vocation. Personnel and Guidance Journal, 1968, 46, 428-436.
- Hoppock, R. Occupational Information. New York: McGraw-Hill, 1967.
- Huber, G. P., Daneshgar, R., & Ford, D. L. An empirical comparison of five utility models for predicting job preferences. Organizational Behavior and Human Performance, 1971, 6, 267-282.
- Ivey, A. E. Interests and work values. Vocational Guidance Quarterly, 1963, 11, 121-124.
- Lawler, E. E., & Porter, L. W. Antecedent attitudes of effective managerial performance. Organizational Behavior and Human Performance, 1967, 2, 122-142.
- Lee, S. M. Job selection by college graduates. Personnel Journal, 1970, 49, 392-395.
- LIAWA College student attitudes toward a life insurance career. Hartford, Conn.: Research Report, 1967-2, File 415, 1967.
- Wicks, P., & Hulin, C. L. Use of importance as a weighting component of job satisfaction. Journal of Applied Psychology, 1968, 53, 394-398.
- Mitchell, T. R. Instrumentality Theories: Conceptual and methodological problems. Seattle, Washington: Organizational Research Technical Report 71-19, 1971.
- Mitchell, T. R., & Albright, D. Expectancy theory predictions of job satisfaction, job effort, job performance, and retention of naval aviation officers. Organizational Behavior and Human Performance, 1971, in press.

- Mitchell, T. R., & Biglan, A. Instrumentality theories: Current uses in psychology. Psychological Bulletin, 1971, in press.
- Osgood, C. E., Suci, G. J., & Tannenbaum, P. H. The Measurement of Meaning. Urbana, Illinois: University of Illinois, 1957.
- Pieters, G. R., Hundert, A. T., & Beer, M. Predicting organizational choice: A post hoc analysis. Proceedings of the 76th Annual Convention of the American Psychological Association, 1968, 573-574.
- Porter, L. W., & Lawler, E. E. Managerial Attitudes and Performance. Homewood, Ill.: Erwin-Dorsey, 1968.
- Rosenberg, M. Occupations and Values. Glencoe, Ill.: The Free Press, 1957.
- Rosenberg, M. J. Cognitive structure and attitudinal effect. Journal of Abnormal and Social Psychology, 1965, 53, 367-372.
- Sheard, J. L. Intra-subject prediction of preferences for organization types. Journal of Applied Psychology, 1970, 54, 248-252.
- Vroom, V. H. Work and Motivation. New York: Wiley, 1964.
- Vroom, V. H. Organizational choice: A study of pre- and post-decision processes. Organizational Behavior and Human Performance, 1966, 1, 212-225.
- Vroom, V. H., & Deci, E. L. The stability of post-decision dissonance: A follow-up of the job attitudes of business school graduates. Organizational Behavior and Human Performance, 1971, 6, 36-49.
- "What Americans Really Think of Business." Newsweek, May 2, 1966, 84-88.
- Whitney, D. R. Predicting from expressed vocational choice: A review. Personnel and Guidance Journal, 1969, 48, 279-286.
- Williamson, E. G. How to Counsel Students. New York: McGraw-Hill, 1939.