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AUTHOR Weis, Susan F.; Hubbard, Constance F.
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ABSTRACT

Recent efforts toward career education and the rise in occupationally oriented programs on the secondary and postsecondary level encourage a close examination of the nature of the relationship between people and their vocations. A 74 item device, the Vocational Commitment Index was developed to assess this relationship. Based upon a theoretically derived construct, the Index has demonstrated ability to discriminate among 123 subjects at four levels of career development in the hospitality industry. Evidence was secured of instrument reliability and validity. (Author)

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THE MEASUREMENT OF VOCATIONAL
COMMITMENT

SUSAN F. WEIS AND CONSTANCE F. HUBBARD
THE PENNSYLVANIA STATE UNIVERSITY
212 RACKLEY BUILDING
UNIVERSITY PARK, PENNSYLVANIA 16802

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Abstract

Recent efforts toward career education and the rise in occupationally oriented programs on the secondary and postsecondary level encourage a close examination of the nature of the relationship between people and their vocations. A 74 item device, the Vocational Commitment Index was developed to assess this relationship. Based upon a theoretically derived construct, the Index has demonstrated ability to discriminate among 123 subjects at four levels of career development in the hospitality industry. Evidence was secured of instrument reliability and validity.

Introduction

Educational efforts to accommodate the needs of our technological society have encompassed career education, work-study programs, vocational and occupational education, job-enrichment programs, and career counseling projects among other means to enhance the worker-job relationship. A focal key of this relationship is believed to be the quality of vocational commitment.

Commitment, dedication or loyalty to one's occupation has been cited by Wieman (1958), Ford (1969), Janson (1970) and other authorities as a desirable attribute of employees which precedes worker satisfaction and self-fulfillment.

Efforts to explore the theoretical foundations of vocational commitment include research on the variables of work satisfaction (Vroom, 1964; Herzberg, Mausner and Synderman, 1959), need satisfaction (Merwin and DiVesta, 1959), identification with the occupation (Brown, 1969; Becker and Carper, 1956), and vocational involvement (Blauner, 1964; White, 1966).

From an effort to examine commitment, two major propositions are formulated about the construct. These propositions stem from Maslow's (1954) motivation and need theory; a theory of vocational development by Super (1953, 1957) and Super, Starishevsky, Matlin and Jordaan (1963); and Roe's (1966) theory of occupational choice.

1. Commitment to a vocation occurs through a process of implementation of a self concept, involvement, need gratification, satisfaction with the vocation, and identification with the vocation.
2. Depth of commitment is dependent upon the continuous repetition of this process within the vocation and the perception that the vocation is capable of providing continuous opportunities for personal reward.

(Weis and Hubbard, 1973)

These propositions are set forth with the assertions that vocational commitment is not necessarily indicated by a vocational choice or by persistence in a particular vocation. The intensity of commitment may vary or remain static over an individual's lifetime.

The process of vocational commitment begins with the choice of a vocation which is perceived by the individual to be congruent with his or her self concept. The individual invests some personal resources such as time, energy, and money upon entry to a chosen occupation. If these investments yield dissatisfaction, limited rewards and little support of the individual's self concept, commitment is not likely to occur. If the investments yield need gratification, positive rewards and support of the self concept, it is likely that the individual will become committed to the vocation. When the commitment process is repeated again and again yielding positive results, the intensity of commitment will be increased. However, vocational commitment can decrease or cease if the individual changes in ways which conflict with his or her original vocational self concept or if the vocation changes in ways which the individual perceives to be nonreinforcing or destructive of the self concept.

From the literature reviewed in this research, the characteristics set forth in Table 1 are considered to be representative of vocationally committed individuals.

From the theoretical exploration of vocational commitment, the formulation of a theory of commitment, and the establishment of characteristics deemed representative of vocationally committed individuals, 143 items were generated for the development of an instrument which could be used to measure vocational commitment.

Table 1. Characteristics of Vocational Commitment

1. Invests a significant amount of money and time in preparation for the vocation (Ginzberg and Herma, 1964; Becker and Carper, 1956; Perry, 1970).
2. Specializes within the vocation, but feels a part of the total vocation (Super, 1957; Super, Starishevsky, Matlin and Jordaan, 1963; Blauner, 1964; Ford, 1969).
3. Exerts a large amount of mental and/or physical energy in the vocational work (Blauner, 1964; Vroom, 1964; Ginzberg and Herma, 1964; Ford, 1969; Perry, 1970; Row, 1966).
4. Is ego-involved in the vocation (Holt, 1945; Kaustler, 1951; Borow, 1964).
5. Increases his or her identification with vocation (Borow, 1964; Katz, 1964; Blauner, 1964; Eastman, 1965; Steffire, 1966; Brown, 1969; Perry, 1970; Ford, 1969; Becker and Carper, 1956; Miller and Form, 1951).
6. Is motivated to act and to persist in the vocational work (Katz, 1964; Vroom, 1964; Ginzberg, and Herma, 1964; White, 1966; Wnuk, 1970).
7. Continuously finds challenges, new learnings and meaningfulness in vocational work (Hanson, 1955; Blauner, 1964; Ford, 1969; Wnuk, 1970).
8. Perceives the vocation as a provider of important intrinsic satisfactions (Ginzberg, Ginsburg, Axelrad, and Herma, 1951; Herzberg, Mausner and Snyderman, 1959; Blauner, 1964; Borow, 1964; Katz, 1964; Brown, 1969; Ford, 1969; Janson, 1970; Berg, 1970; Wnuk, 1970).
9. Satisfies his or her motivating needs, particularly for self-actualization (Maslow, 1954; Blauner, 1964; Row, 1966).
10. Is more productive in the vocational work (Gellerman, 1963; Vroom, 1964; Blauner, 1964; Ford, 1969).

Table 1: Characteristics of Vocational Commitment

11. Perceives similarities between his or her self concept and a personal conception of the vocational image, purposes and values (Foote, 1951; Gouldner, 1960; Rosenberg, 1957; Vroom, 1964; Orzack, 1959; Barry and Wolf, 1962; Brown, 1969).
 12. Feels pressured to establish and maintain congruency between his or her self concept and a personal conception of the vocation (James, 1965; Steffire, 1966; Brown, 1969).
 13. Perceives self to be a loyal and committed member of the vocation (Becker and Carper, 1956; Orzack, 1959; Blauner, 1964; Eastman, 1965; Katz, 1964).
 14. Conforms to acceptable modes of behavior, incorporates values and goals and acquires ideologies of the vocation (Becker and Carper, 1956; Gouldner, 1960; Nosow and Form, 1962; Katz, 1964; Blauner, 1964).
 15. Perceives the vocation and his or her actual work as being valuable, important, and meaningful (Dubin, 1956; Orzack, 1959; Blauner, 1964; Eastman, 1965; Row, 1966).
 16. Defines self in terms of membership in the vocation and defends the image of the vocation as he or she would defend the self image (Miller and Form, 1951; Katz, 1964; Brown, 1969).
 17. Remains in the vocation and further commits self to the vocation (Foote, 1951; Becker and Carper, 1956; Katz, 1964; Blauner, 1964; Grusky, 1966).
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Description of The Index

The Vocational Commitment Index (Weis and Hubbard, 1973) contains 74 statements of behaviors descriptive of one's relationship to his or her job. The subject responds to each statement in accordance with the response categories of strongly agree, agree, disagree and strongly disagree. Scoring the device involves a process of assigning all responses of strongly agree with a weight of 4, agree with a weight of 3, disagree with a weight of 2, and strongly disagree with a weight of 1. Responses to all items are then summed to yield a total score. Scores may range from 74, which is interpreted as representing a vocationally noncommitted individual; to 296 which is interpreted as representing a highly committed individual.

Development Of The Vocational Commitment Index

A pilot form of the instrument was developed from 114 items selected from the original pool of 143 items. The pilot form was pretested and refined to a 74 item device. Criteria for refining the instrument were internal consistency of the Index, the selection of items which correlated positively with total test score and the selection of items which provided the greater evidence of eliciting variation in responses. Those items receiving favorable evaluations from an item analysis were retained to comprise the final version of the Index.

Validity Of The Index

In an effort to establish construct validity of the instrument, 16 graduate students reviewed the characteristics of vocationally committed individuals and responded to each item on the pilot form of the Index in accordance with a 3-point scale. The scale represented three categories of degree to which an

item reflected the characteristics of commitment; highly, slightly, or not at all. These categories were weighted 3, 2, and 1, respectively, in converting the ratings of the 16-member jury to numerical quantities. The construct validity ratings were then summed for each item. Construct validity ratings ranged from 16 to 48. Items receiving a rating of 32 and below were deemed less valid, and those with ratings of 33 and above as being more valid.

Of the forty items eliminated from the Index in the refining process, 31 items received validity ratings indicative of little or no relevance to the characteristics of vocational commitment and 9 items received ratings indicative of relevance to the construct. These data are presented in Table 2.

The establishment of construct validity for this instrument is based upon judgments of the logical relationships between the items and the characteristics deemed representative of vocationally committed individuals. This procedure is entirely dependent upon the judges' ability to comprehend the characteristics and the items and the quality of their logical analyses. Further testing of construct validity is warranted.

In an effort to determine if vocational commitment as measured by the Index differed between four groups of subjects representing various levels of career development in the hospitality industry, a one-way analysis of variance was computed on group means. The subjects were 38 teachers of secondary vocational education programs, 38 secondary vocational education students, 14 undergraduate students and 33 college graduates employed in managerial or supervisory jobs. Results of the analysis of variance, presented in Table 3, indicated a significant difference between group means on vocational commitment.

Table 2. Numbers of Items Retained and Omitted in the Vocational Commitment Index Categorized by Construct Validity Ratings

	<u>MORE VALID ITEMS</u>	<u>LESS VALID ITEMS</u>
OMITTED	9	31
RETAINED	74	0

Table 3. Analysis of Variance Between Scores of Four Groups of Subjects on the Vocational Commitment Index

<u>SOURCE</u>	<u>DF</u>	<u>SUM OF SQUARES</u>	<u>MEAN SQUARE</u>	<u>F RATIO</u>
Treatment	3	18498.76	6166.26	12.112*
Error	119	60582.65	509.10	
Total	122	79081.42		

*significant, $p. < .01$

A further analysis of group differences was undertaken through a series of t tests computed on Index scores between each combination of the four groups. Results of these tests presented in Table 4, indicate that significant differences did emerge between undergraduate students and college graduates ($p < .05$), undergraduate students and vocational teachers ($p < .01$), and between secondary students and vocational teachers ($p < .01$).

These findings are supportive of the instrument's capability to discriminate between general levels of vocational commitment as represented by persons at various career levels. The failure of the instrument to produce significant differences in commitment between more subtle levels of career development was evidenced by nonsignificant t values emerging on tests computed between secondary and undergraduate students, secondary students and college graduates, and between college graduates and vocational teachers. This failure may be due to the possibility that no real differences in commitment exist between these groups, the variations in scores within groups, or the limited number of subjects.

Vocational commitment as predicted by the theory is dependent upon investments of personal resources and subsequent evaluations of these investments. From a review of the mean scores of the four groups, it appears that commitment levels do vary from those persons making initial investments of resources as students to persons more advanced in their career development. To this extent, the instrument and the theory of vocational commitment appear to be in accord.

Table 4. Group Means, Standard Deviations and t Values of Differences Between Groups on Vocational Commitment

<u>Group</u>	<u>N</u>	<u>Mean</u>	<u>Standard Deviation</u>	<u>Under-graduates</u>	<u>t Values Secondary Students</u>	<u>Employed Graduates</u>
Undergraduate Students	14	209.36	34.60			
Secondary Vocational Students	38	217.90	20.95	1.155		
Employed College Graduates	33	234.79	22.33	2.535*	1.885	
Vocational Teachers	38	242.87	18.61	3.445**	5.493**	1.642

*significant $p < .05$

**significant $p < .01$

Reliability

Evidence of Index reliability was secured from a computation of Kuder-Richardson (1937) Formula 20 on data from the 123 subjects at four levels of career development. The resulting reliability was .96.

From a Likert Attitude Scale Analysis (Kohr, 1973) computed on data from 151 associate degree students in three hospitality education programs, Guttman's (1945) Lambda-3 index of reliability was established at .96, and a Coefficient Alpha (Cronbach, 1951) index of reliability was computed to be .94. Results of the Likert analysis are detailed in Table 5. Descriptive statistics relevant to the internal consistency of the Vocational Commitment Index are presented in Table 6.

Additional research using this instrument with 74 secondary teachers of home economics subjects yielded a reliability estimate of .97 employing Rabinowitz and Eikeland's (1964) analysis of variance technique.

Conclusion

Evidence of the validity and reliability of the Vocational Commitment Index support its credibility as a potential instrument for the measurement of an important aspect of the worker-job relationship. The device and the theory both require further testing. Possible uses for the Index are envisioned in guidance and counseling; personnel matters of business and industry; career, occupational, and vocational education; and in efforts to explore and validate the career ladders and lattices within occupational fields.

Table 5. Descriptive Statistics On The Vocational Commitment Index

Mean	231.00
Variance	537.85
Standard Deviation	23.19
Guttman's Lambda - 3	
Index of reliability	.96
Coefficient Alpha	
Index of reliability	.94
Standard error of measurement	5.67
Estimated average inter-item correlation	.18
Average item mean	3.12
Average item-total correlation	.43

(n = 151)

Table 6. Items, Item Means, Standard Deviations, Item-Total Score Correlations and Item t-Values of Differences Between Upper and Lower Score Groups on the Vocational Commitment Index

	<u>Item Mean</u>	<u>Item Standard Deviation</u>	<u>Item-Total Score Correlation</u>	<u>t-Values</u>
1. I see myself as having most of the necessary skills for my job.	3.49	.60	.21	2.72*
2. Before I started this job, I could picture myself doing this type of work.	2.95	.84	.42	4.15*
3. I accept changes within my job readily.	3.18	.61	.27	2.58**
4. Although I do not always agree with the changes made in my job, I try to make the most of them.	3.26	.57	.42	4.20*
5. I am more satisfied with my job when things go well.	3.63	.64	.08	1.44 n.s.
6. I feel like doing more work when I am happy with my job.	3.72	.47	.31	3.95*
7. I experience an unhappy feeling when things go wrong on my job.	2.96	.86	.07	1.13 n.s.
8. I am not pleased with myself if I cannot do the things required of me on my job.	3.29	.74	.42	4.08*
9. I try to follow the example of leaders in this occupation.	3.12	.69	.29	2.62**
10. I see myself as one of "the group" of workers in this particular occupation.	2.76	.88	.29	3.14*
11. I try to act as people expect a person doing my job to act.	3.06	.75	.22	1.61 n.s.

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	<u>Item Mean</u>	<u>Item Standard Deviation</u>	<u>Item-Total Score Correlation</u>	<u>t-Values</u>
12. Doing this job comes very natural to me.	3.21	.66	.38	3.74*
13. I feel that if something changes within my occupation, I personally must also make changes within myself.	2.90	.78	.18	2.03**
14. I feel very close to my occupation.	3.20	.69	.57	6.24*
15. I can change myself to meet the varied demands of my job.	3.20	.53	.34	2.61**
16. I think about some of the mistakes I have made on the job when I am relaxing.	2.85	.73	.20	1.75 n.s.
17. I try to live up to my supervisor's expectations for performance in my job.	3.31	.65	.39	5.02*
18. I see myself as progressing from this job to jobs which are better within this occupation.	3.16	.79	.18	1.90 n.s.
19. I have spent some of my own money on equipment and materials to help me in my job.	2.87	.90	.44	6.28*
20. I am taking courses to help me perform in my job.	3.03	.91	.38	4.65*
21. I am taking courses to help me advance in this occupation.	2.99	.93	.37	4.39*
22. My job requires physical energy and strength.	3.04	.83	.32	3.33*
23. My job requires mental ability.	3.55	.63	.65	7.34*
24. My job is challenging and interesting to me.	3.42	.62	.54	6.25*
25. I know that my job is important to the success of the entire operation.	3.46	.68	.51	6.74*

	<u>Item Mean</u>	<u>Item Standard Deviation</u>	<u>Item-Total Score Correlation</u>	<u>t-Values</u>
26. I continue to learn interesting things about my work.	3.38	.62	.46	4.20*
27. I feel good about my work on the job.	3.18	.65	.54	5.13*
28. I spend some of my free time trying to improve myself on the job by reading about it in related magazines.	3.09	.83	.57	7.31*
29. I take part in workshops or programs to help me do a better job.	3.06	.78	.53	7.12*
30. I exert large amounts of energy when I am working on my job.	2.98	.78	.20	3.04*
31. My job is important to me.	3.46	.71	.59	7.59*
32. I find there is always something new to learn about my job.	3.49	.67	.69	9.42*
33. When I leave work at the end of the day, I feel that I have done something worthwhile.	3.17	.67	.62	6.23*
34. I am willing to work overtime.	3.29	.72	.49	6.12*
35. I am pleased when I do more work than that which was expected of me.	3.16	.64	.48	4.03*
36. I participate in activities related to my work such as a union.	2.48	.88	.26	2.71*
37. I am proud to tell people what kind of a job I have.	3.33	.67	.61	7.05*
38. I defend my job when someone else criticizes it.	3.22	.71	.57	5.58*
39. I will keep this job until retirement.	2.38	.94	.18	2.82*
40. I rarely miss work.	3.42	.73	.22	2.04**

	<u>Item Mean</u>	<u>Item Standard Deviation</u>	<u>Item-Total Score Correlation</u>	<u>t-Values</u>
41. I feel badly if I have to miss work when I am ill.	2.98	.86	.41	3.47*
42. I have no desire to leave this job for any reason.	2.38	.91	.35	3.83*
43. I work well with other employees on the job.	3.31	.65	.45	4.63*
44. I do my part of the job and expect everyone else to do their part.	3.46	.56	.48	4.86*
45. I have respect for the other people on this job.	3.36	.64	.52	5.81*
46. I am proud of what I can accomplish in my job.	3.30	.50	.56	6.43*
47. I am able to express my creative talents in this occupation.	3.04	.64	.48	4.86*
48. On my job, work is fun and interesting.	3.10	.70	.60	4.98*
49. In my occupation, the work is interesting and enjoyable.	3.23	.65	.63	6.12*
50. My co-workers take an interest in my work.	2.98	.66	.44	3.76*
51. I am interested in what my co-workers do on the job.	3.15	.65	.56	6.15*
52. I study what my co-workers do so that I can progress in this occupation.	3.07	.72	.51	5.45*
53. I belong to organizations related to my occupational field.	2.85	.88	.49	5.36*
54. I cooperate with my co-workers.	3.32	.59	.55	5.12*
55. My job interests me in a variety of ways.	3.28	.63	.69	7.22*
56. I like my occupational field better than any others that I could enter.	3.08	.82	.53	6.07*

	<u>Item Mean</u>	<u>Item Standard Deviation</u>	<u>Item-Total Score Correlation</u>	<u>t-Values</u>
57. I try to perfect my job skills.	3.23	.65	.63	6.49*
58. I do not have to worry about being moved to different jobs within the company.	2.83	.77	.27	2.44**
59. I work hard at this job in order to gain advancements.	3.11	.71	.35	3.46*
60. This job really makes me feel like I am someone important or special.	3.05	.66	.62	5.79*
61. I never criticize my job to other people.	2.76	.74	.44	3.94*
62. Although it has its faults, the good points about my job are most important to me.	3.19	.64	.63	6.02*
63. My job is a specialized one that very few people could do without some type of training.	3.11	.86	.54	4.94*
64. I am confident that I can do anything in my job that my supervisor would ask of me.	3.20	.62	.32	3.66*
65. I go along with the rules and regulations set up by the company.	3.21	.59	.47	3.85*
66. I find myself believing in and working for the same things that most people in this occupation want.	3.12	.63	.53	4.51*
67. When someone criticizes my occupation, I personally feel they are criticizing me.	2.56	.82	.20	1.86 n.s.
68. I find that the longer I work at this job, the more it becomes a part of me.	3.04	.68	.62	6.23*
69. I refer to the place I work as "my restaurant," etc.	2.71	.82	.37	3.54*
70. If I were just starting to work for the first time, I would choose this same occupation.	3.01	.82	.47	4.60*

	<u>Item Mean</u>	<u>Item Standard Deviation</u>	<u>Item-Total Score Correlation</u>	<u>t-Values</u>
71. Many of the people I work with are also personal friends.	2.81	.82	.16	2.57**
72. I am enthusiastic about my job.	3.20	.67	.67	5.65*
73. My work results in benefits to many people.	3.33	.71	.57	6.01*
74. I feel that my job is quite permanent.	3.00	.84	.39	3.85*

¹Upper score group comprised of upper 27% of subjects (n = 37) scoring between 245 to 290. Lower score group comprised of lower 27% of subjects (n = 37) scoring between 141 to 220. (n = 151)

*significant, $p < .01$
 **significant, $p < .05$
 n.s. non significant

References

- Barry, R. and Wolf, B. An Epitaph for Vocational Guidance. New York: Columbia University, Teachers College: Bureau of Publications, 1962.
- Becker, H.S. and Carper, S.W. The development of identification with an occupation, American Journal of Sociology, 1956, 61, 4, 289-298.
- Berg, H.V. Motivation and quality principles in practice, Training and Development Journal, June 1970, 28-31.
- Blauner, R. Alienation and Freedom. Chicago: The University of Chicago Press, 1964.
- Borow, H. An integral view of occupational theory and research in Borow, H., ed., Man in a World of Work. Boston: Houghton Mifflin, 1964.
- Brown, M. Identification and some conditions of organizational involvement, Administrative Science Quarterly, 1969, 14, 3, 346-355.
- Cronbach, L.J. Coefficient Alpha and the internal structure of tests, Psychometrika, 1951, 16, 297-334.
- Dubin, R. Industrial workers' worlds: a study of the central life interests of industrial workers, Social Problems, 1956, 3, 1, 131-142.
- Eastman, G. The components of "commitment", Educational Perspectives, 1955, 4, 3, 12-15+.
- Foote, N.N. Identification as a basis for a theory of motivation, American Sociological Review, 1951, 16, 1, 14-21.
- Ford, R.N. The obstinate employee, Psychology Today, 1969, 3, 6, 32-35.
- Gellerman, S.W. Motivation and Productivity. American Management Association, 1963.
- Ginzberg, E., Ginsburg, S.W., Axelrad, S., and Herma, J.L. Occupational Choice: An Approach to a General Theory. New York: Columbia University Press, 1951.
- Ginzberg, E. and Herma, J.L. Talent and Performance. New York: Columbia University Press, 1964.
- Gouldner, H.P. Dimensions of organizational commitment, Administrative Science Quarterly, 1960, 4, 468-486.
- Grusky, O. Career mobility and organizational commitment, Administrative Science Quarterly, 1966, 10, 488-503.

- Guttman, L. A basis for analyzing test-retest reliability, Psychometrika, 1945, 10, 255-282.
- Hanson, J.W. The role of commitment in learning, Educational Leadership, December 1955, 142-146.
- Herzberg, F., Mausner, B. and Synderman, B.B. The Motivation to Work. New York: Wiley, 1959.
- Holt, R.R. Effects of ego-involvement upon levels of aspiration, Psychiatry, 1945, 8, 299-317.
- Hubbard, C.F. Toward a Theory of Vocational Commitment. The Pennsylvania State University, College of Education, unpublished Master's Paper, 1971.
- James, F., III, Occupational choice and attitude change, Journal of Counseling Psychology, 1965, 12, 3, 311-315.
- Janson, R. Job enrichment: challenge of the 70's, Training and Development Journal, 1970, 24, 6, 7-9.
- Katz, D. The motivational basis of organizational behavior, Behavioral Science, 1964, 9, 2, 131-146.
- Kaustler, D.H. A study of the relationship between ego-involvement and learning, Journal of Psychology, 1951, 32, 225-230.
- Kohr, Richard L. Likert Attitude Scale Analysis. The Pennsylvania State University, Computer Program Documentation, 1973.
- Kuder, G.F. and Richardson, M.W. The theory of estimation of test reliability, Psychometrika, 1937, 2, 151-160.
- Maslow, A.H. Motivation and Personality. New York: Harper and Row, 1954.
- Merwin, J.C. and DiVesta, F. A study of need theory and career choice, Journal of Counseling Psychology, 1959, 6, 4, 302-308.
- Miller, D.C. and Form, W.H. Industrial Sociology. New York: Harper and Row, 1951.
- Nosow, S. and Form, W.H., eds., Man, Work, and Society. New York: Basic Books, 1962.
- Orzack, L.H. Work as a "central life interest" of professionals, Social Problems, 1959, 7, 1, 125-132.
- Perry, W.G., Jr. Forms of Intellectual and Ethical Development in the College years. New York: Holt, Rinehart and Winston, 1970.

- Rabinowitz, W. and Eikeland, H.M. Estimating the reliability of tests with clustered items, Pedagogisk Forskning, 1964, 85-106.
- Row, A. The Psychology of Occupations. New York: Wiley, 1966.
- Rosenberg, M. Occupations and Values. Glencoe: Free Press, 1957.
- Stefflre, B. Vocational development: ten propositions in search of a theory, Personnel and Guidance Journal, 1966, 44, 611-616.
- Super, D.E. A theory of vocational development, The American Psychologist, 1953, 8, 4, 185-190.
- Super, D.E. The Psychology of Careers. New York: Harper and Row, 1957.
- Super, D.E., Starishevsky, R., Matlin, N. and Jordaan, J.P. Career Development: Self Concept Theory. New York: College Entrance Examination Board, 1963.
- Vroom, V.H. Work and Motivation, New York: Wiley, 1964.
- Weis, S.F. and Hubbard, C.F. The Vocational Commitment Index, Home Economics Research Journal, 1973, 2, 2, 105-111
- White, K. The relation of career involvement to persistence in the teaching profession among beginning female elementary teachers, Journal of Educational Research, 1966, 60, 2, 51-53.
- Wieman, H.N. Man's Ultimate Commitment. Carbondale: Southern Illinois University Press, 1958.
- Wnuk, J.J., Jr. Career paths, Training and Development Journal, May 1970, 38-40.