Journal of Vocational Behavior, 7, 135-148 (1975)

The Relation of Vocational Aspirations and Assessments to Employment Reality

GARY D. GOTTFREDSON, JOHN L. HOLLAND,
and LINDA S. GOTTFREDSON
The Johns Hopkins University

A typology was used to organize Census data about kinds of employment, survey data about people's aspirations, and the results of vocational assessments made with and without norms for men and women at two educational levels–some high school or above, and some college or above. Results indicate that kinds of employment differ greatly for different educational levels and between the sexes. The distribution of people's aspirations resembles the distribution of actual employment with some notable exceptions. Results also indicate that the use of sex-based interest inventory norms is unrealistic because they create distributions that diverge greatly from the distribution of actual employment. Some implications of the congruence between kinds of people and their employment are discussed for vocational guidance, test development, and career development research and theory.

It is widely assumed that the degree of congruence or compatibility between a society's people and the work they do is important. This assumption is seen in the work of counselors, personnel workers, and sociologists. A clearer knowledge of the distributions of human potentials–aspirations, interests, competencies, etc.–and the congruence of these potentials with the distribution of work people do is central to a better understanding of career development, satisfaction in work, person-environment congruence (Walsh, 1973), and vocational guidance.

The purpose of this paper is to organize and compare evidence about kinds of work people do, about what people want to do, and about the outcomes of standard vocational assessments. How are the kinds of work that people do distributed among different occupational categories? Do the distributions differ by sex and educational level? What kinds of work do people

Joyce Epstein, John Hollifield, and Nancy Karweit made comments useful in preparing this paper. Request reprints from Educational Research Center, The Johns Hopkins University, Baltimore, Maryland 21218.

aspire to do? What is the distribution of outcomes of some common vocational assessments? Most important, how closely do the distributions of actual employment, employment aspirations, and vocational assessment outcomes resemble each other?

METHOD

The research questions require a classification that can organize information about both people and jobs according to kind of work done and level of training or education. Holland's (1973) scheme meets this requirement: it provides explicit rules for classification of all people and all jobs into mutually exclusive and meaningful categories (Realistic, Investigative, Artistic, Social, Enterprising, Conventional) and specifies the educational level required for all jobs. Also, the scheme has an explicit rationale developed for understanding person-job interactions, and it has received substantial empirical support.

Kinds of Occupations

The occupations of men and women (a total of 424 occupations) detailed in the 1970 Census (U.S. Bureau of the Census, 1973, pp. 582-592) were coded according to the classification scheme for kind and level using the procedure outlined by Holland (1972, 1973). Occupations not listed in the classification were coded by translating the *Dictionary of Occupational Titles* (U.S. Department of Labor, 1965) code for an occupation into Holland categories using Viernstein's (1972) procedure.

These occupational data include only employed persons and exclude members of the armed forces. In addition, about 5.6% of the men and 6.6% of the women in the Census not classified according to detailed occupation were excluded from our analyses. In the Census these individuals had been "allocated" to one of the major occupational groupings according to their demographic characteristics. The percent allocated within each of the main Census categories ranges from 3.6 to 11.7%—most being allocated in the lowest level categories.

Aspirations and Assessments

In general, it was possible to find published data for national representative samples of persons at high school and college education levels to investigate the distributions of vocational aspirations and vocational assessment outcomes.

The distributions of kinds of people were estimated in two ways. First, people's vocational aspirations were coded into Holland categories. Aspirations

or occupational choices usually equal or exceed interest inventories in predicting the category of a person's future occupation or choice (Dolliver, 1969; Whitney, 1969; Holland & Lutz, 1968; Gottfredson & Holland, in press) and have considerable theoretical importance as an expression of a person's self-concept (Super, 1972). People were also classified by their interest inventory scores.

Use was made of vocational aspiration or choice data for nationally representative samples of school populations obtained by the American College Testing Program (Prediger, Roth, & Noeth, 1973), data obtained in the Project TALENT follow-up of persons going on to college (Flanagan, Shaycroft, Richards, & Claudy, 1971), and American Council on Education (1972) data on entering college freshmen. The American College Testing data were obtained by familiarizing respondents with the classification scheme and allowing them to pick their category; the TALENT aspirations were responses to an open-ended item; and in the American Council on Education data, a student selected one alternative from a standard list. It was necessary to recode the TALENT and American Council on Education data to conform to the occupational categories used in these analyses. Because the American College Testing Program data were obtained using the typology, no recoding was done.

Two vocational assessments were used, the Self-Directed Search and the American College Testing Program (ACT) Interest Inventory. Both devices assess resemblance to six ideal types according to Holland's (1973) theory of personality types and model environments. The ACT Interest Inventory data on nationwide samples of 9th graders and college-bound high school seniors were presented by Prediger and Hanson (1974). Because of the controversial nature of the use of sex-specific norming procedures advocated by Prediger and Hanson, these data are shown for both the raw-scoring and normed-scoring procedures so that both can be compared to the distributions of aspirations and actual employment.

Also available were data on diverse, but not representative, samples of 2169 high school boys, 2447 high school girls, 1378 college men, and 1509 college women assessed with Holland's (1972) *Self-Directed Search* (SDS) collected during several years of research with that guidance simulation. The SDS measures not only interests but also self-reported competencies, activities, and self-ratings.

Level of Occupations and People

An occupation's level was defined as the General Educational Development (GED) level listed for that occupation in the *Dictionary of Occupational Titles,* a measure which correlates .82 with the Duncan socioeconomic index (Nafziger, Holland, Helms, & McPartland, 1974). The samples of high school

and college people used in the analyses correspond roughly to persons whose eventual GED levels are three and above or five and above, respectively, and thus allow comparisons with the distribution of occupations at those levels as reflected in the Census data. The some-high-school-and-above group (GED 3-6) includes some persons who will belong to the some-college-and-above group (GED 5-6). This overlap diminishes the contrasts between the two groups. Accordingly, the obtained differences underestimate the differences between levels 3-4 and levels 5-6.

Two observations are important. First, level of people has been assessed by using their actual education levels—not the levels they aspire to. Thus, questions of the match between aspirations and jobs described here pertain to kind, not level, of work. Second, because only kind, not level, of aspiration is used, the distinctions often made among aspiration, preference and choice or expectation (Crites, 1969) are not relevant here. Empirical evidence indicates that these distinctions have relevance for studying questions of level—prestige, status, etc. (Trow, 1941)—but other research (Dolliver, 1969; Whitney, 1969; Holland & Lutz, 1968; Holland & Gottfredson, in press) shows that aspirations or choices are usually interchangeable for the study of kind of work. Consequently aspirations and expressed choice have been treated as equivalent measures in these analyses.

RESULTS

The following sections review the main results given in Tables 1-3. No tests of significance were performed because of the large sample sizes.

Employment Differences by Sex and Level

The kinds of employment are distributed in strikingly different ways for the two sexes. For example, 51% of the men in jobs at the some-high-school-or-above levels are employed in Realistic occupations. In contrast, only 18% of the women at this level are employed in Realistic occupations. On the other hand, 42% of the women in the some-high-school-and-above group, but only 7% of the men at this level, are employed in Conventional kinds of work. These and other differences for the some-college-and-above group in Table 1 reveal pervasive differences according to sex in kind of employment.

The distributions of kinds of employment are different for different GED levels. For example, 51% of the men at the some-high-school-or-above level are employed in Realistic occupations, but only 6% of men's occupations at the some-college-or-above level are Realistic occupations. Only 7% of the men employed in jobs requiring at least some high school hold Social jobs, but the percentage increases to 20% in the Social category for men in jobs requiring at least some college or more.

TABLE 1

Actual Jobs, People's Aspirations, and Vocational Assessments for Different Kinds of Work by Sex and Educational Level (Percent)

Kind of work	Some high school and above					Some college and above				
			Vocational assessment					Vocational assessment		
	Jobs[a]	Aspirations[b]	SDS[c]	ACT R.S.[d]	ACT normed[e]	Jobs[a]	Talent aspiration[f]	ACE aspiration[g]	SDS[c]	ACT R.S.[d]	ACT normed[e]
Men											
Realistic	51	46	40	50	24	6	18	14	20	20	21
Investigative	9	16	23	16	16	21	21	16	34	28	18
Artistic	2	11	8	16	17	6	5	5	8	8	18
Social	7	13	20	11	14	20	21	8	24	28	14
Enterprising	25	8	6	4	14	42	28	22	11	9	15
Conventional	7	9	3	2	15	6	7	22	3	7	14
Women											
Realistic	18	7	1	1	14	1	0	1	1	<1	16
Investigative	2	14	8	4	15	5	7	15	15	10	21
Artistic	1	11	13	31	20	5	4	8	16	12	18
Social	24	43	67	52	18	70	76	30	62	67	15
Enterprising	13	5	1	1	13	15	3	7	2	3	18
Conventional	42	22	11	11	18	4	10	7	3	7	12

[a]Based on recode of detailed occupational data, U.S. Bureau of the Census, 1973. Some high school and above includes jobs at GED levels 3 to 6 only. Some college and above includes jobs at GED levels 5 and 6 only.

[b]Vocational aspirations of 11th graders (from Prediger et al., 1973).

[c]Based on unpublished data accumulated for high school and college students. Diverse samples of 2169 high school boys, 2447 high school girls, 1378 college men, and 1509 college women.

[d]Data presented by Prediger and Hanson (1973) for a nationwide sample of 9th graders and college-bound seniors for the usual raw-score assessment.

[e]Data for the same persons as the raw-score distribution but scored using sex-based norms (Prediger & Hanson, 1973).

[f]Based on a recode of data presented by Flanagan et al. (1971, Appendices G and M) for college students in the project TALENT follow-up.

[g]Based on a recode of data presented by the American Council on Education (1972). The broad categories used by the American Council on Education make it impossible to separately estimate the proportions of persons aspiring to Conventional and Enterprising occupations. In addition, a large, heterogenous group of "other" aspirations and "undecided" persons are excluded so that the totals are far less than 100%.

Sex differences existing at one educational development level do not necessarily exist at the other level. While Conventional jobs at the some-high-school-or-above level are disproportionately held by women, this is not true at the higher level.

Aspirations and Jobs

In Table 1, the distributions of vocational aspirations resemble the distributions of actual employment. Two striking differences are exceptions to this generalization. People of both sexes at both GED levels aspire to Enterprising jobs at rates that are far below the employment rate. And people of both sexes at the lower GED levels aspire to both Artistic and Social occupations at rates greater than the employment rate.

Vocational Assessments and Jobs

Table 1 also shows that the distributions of vocational assessments do not coincide with the distributions of actual employment. In the case of the SDS assessments, this occurrence may or may not be due to the sampling; the samples are best described as large and diverse rather than representative. Even more striking are the divergent distributions produced by the use of norms which treat men and women differently. The normed ACT assessment creates a nearly rectangular distribution of types which is more divergent from either the distribution of aspirations or actual employment than is the unnormed scoring procedure.

Aspirations, Assessments, and Jobs

Several trends are notable when we compare aspirations, assessment outcomes, and actual employment. One trend is for the vocational assessments and aspirations of men and women to fall much less frequently in the Enterprising category than does actual employment. In addition, aspirations and assessments of women at the some-high-school-and-above level fall much less frequently into Realistic and Conventional categories than they are employed in these kinds of work. Last, among the some-high-school-and-above group there are more Social types than Social employment opportunities. This discrepancy does not exist for the some-college-and-above group.

With some exceptions, the distributions of kinds of people estimated either from vocational aspirations or unnormed assessments do resemble the distributions of actual employment. At the same time, the distributions of aspirations, assessments, and employment of persons with some college or equivalent training are strikingly different from those for persons at lower levels.

Subtype Analyses

Two other analyses are important. People do not, of course, resemble one and only one personality type or model. One way of expressing the degree of resemblance to each model is to rank scores resulting from assessments. The first two types, e.g., Realistic-Investigative (or RI), then approximate a person's degree of resemblance to these two models in decreasing order of salience. When this is done, it is common to find that some combinations occur more frequently than others (Holland, 1972).

Table 2 compares the two-letter distribution of occupational codes for employed persons in occupations at levels 3-6 derived from the 1970 Census data with the distributions of two-letter SDS codes for a sample of high school men and women. Although the SDS sample is not representative of any well-defined population, it is apparent that the same two-letter combinations tend to be common or rare in both distributions. This suggests that the infrequent occurrence of some codes in vocational assessments is not an anomaly of assessment but corresponds to the uneven distribution of kinds of work in society.

To show that the particular two-letter combinations that are rare is not a peculiarity of the high-school-or-above population, the distribution of two-letter codes for all persons employed in 1970 is shown in Table 3. Two-letter codes remain unevenly distributed. These results support the concept of consistency (Holland, 1973) and its assessment by the SDS (Holland, 1972). Consistency is associated with the commonness of a two-letter code, in both personal assessments (SDS) and in actual employment.

DISCUSSION

The best available data were used for these analyses. Unfortunately the samples were not always comparable. The SDS samples—the only available assessments of people by subtype—are not representative samples, although they are diverse. No usable data could be located for person assessments based on the Kuder Preference Inventory or the Strong Vocational Interest Blank although the Strong-Campbell Interest Inventory (Campbell, 1974) does assess resemblance to the Holland types used in these analyses. It was also necessary to exclude one source of data on high school students' aspirations (Claudy, 1973) because it was believed that the response format used for the original Project TALENT survey restricted the response options for some kinds of work. This problem does not apply to the TALENT follow-up data recoded in Table 1 because an open-ended format was used. An additional difficulty is that a large proportion of women are now or will be engaged in homemaking. This occupation is not listed in the Census data, and women temporarily not

TABLE 2

Kinds of People and Jobs at General Education Development Levels 3-6[a]

Two-letter classification of work	Men			Women		
	Employment		People	Employment		People
	Number	%	%	Number	%	%
RI	10,191,046	27.6	13.4	2,189,980	9.1	.2
RA	151,141	.4	5.1	40,623	.2	–
RS	1,613,183	4.4	13.9	1,143,910	4.8	.3
RE	2,311,874	6.3	5.9	546,831	2.3	<.1
RC	4,476,397	12.1	1.8	366,435	1.5	–
IR	1,531,495	4.1	9.3	174,271	.7	.4
IA	213,908	.6	2.8	24,653	.1	1.5
IS	577,095	1.6	7.9	196,356	.8	5.6
IE	101,048	.3	2.1	14,666	.1	.1
IC	780,705	2.1	.6	76,294	.3	.3
AR	–	–	1.4	–	–	.2
AI	375,826	1.0	1.8	145,262	.6	1.3
AS	190,186	.5	4.1	117,143	.5	10.3
AE	107,352	.3	.9	37,360	.2	.4
AC	–	–	–	–	–	.5
SR	287,361	.8	4.7	1,313,177	5.5	.9
SI	390,627	1.0	4.4	1,120,044	4.7	12.5
SA	1,127,170	3.0	3.1	2,838,797	11.9	24.3
SE	584,744	1.6	6.4	245,989	1.0	11.2
SC	229,044	.6	1.5	229,995	1.0	17.7
ER	267,304	.7	1.1	18,697	.1	<.1
EI	–	–	.7	–	–	.1
EA	286,675	.8	.5	14,723	.1	<.1
ES	7,282,790	19.7	3.1	2,638,996	11.0	.7
EC	1,294,417	3.5	.7	349,427	1.5	.2
CR	215,167	.6	.6	1,678,306	7.0	.1
CI	394,483	1.1	.4	1,427,848	6.0	.2
CA	–	–	<.1	–	–	.8
CS	548,987	1.5	1.0	5,392,007	22.5	9.4
CE	1,361,786	3.7	.8	1,583,837	6.6	.5

[a]Note. Employment data are based on a recode of detailed occupational categories in the 1970 Census (U.S. Bureau of the Census, 1973). Data on people are outcomes of SDS assessment for diverse samples of 2169 high school boys and 2447 high school girls.

employed are also excluded. Finally, women are disproportionately engaged in part-time work. These peculiarities make interpretations for women more difficult than for men.

The chief strength of these analyses is that they give a comprehensive perspective on person-job congruence. In contrast with costly and difficult

TABLE 3

Persons Actually Employed by Kind of Work–1970[a]

Kind of work	Men		Women	
	Number	%	Number	%
RI	13,941,110	30.9	3,329,420	12.2
RA	151,141	.3	40,623	.1
RS	5,188,219	11.5	1,936,951	7.1
RE	2,584,793	5.7	1,664,476	6.1
RC	4,987,524	11.1	516,409	1.9
IR	1,531,495	3.4	174,271	.6
IA	213,908	.5	24,653	.1
IS	577,095	1.3	196,356	.7
IE	101,048	.2	14,666	<.1
IC	780,705	1.7	76,294	.3
AR	–	–	–	–
AI	375,826	.8	145,262	.5
AS	190,186	.4	117,143	.4
AE	107,352	.2	37,360	.1
AC	–	–	–	–
SR	287,361	.6	1,313,177	4.8
SI	390,627	.9	1,120,044	4.1
SA	1,127,170	2.5	2,838,797	10.4
SE	587,744	1.3	245,989	.9
SC	231,344	.5	253,990	.9
ER	267,304	.6	18,697	.1
EI	–	–	–	–
EA	286,675	.6	14,723	<.1
ES	7,282,790	16.2	2,638,996	9.7
EC	1,294,417	2.9	349,427	1.3
CR	215,167	.5	1,678,306	6.2
CI	394,483	.9	1,427,848	5.2
CA	–	–	–	–
CS	593,213	1.3	5,403,358	19.9
CE	1,361,786	3.0	1,583,837	5.8

[a]Note. Recode of detailed occupational categories (U.S. Bureau of the Census, 1973).

efforts to assess this congruence by a piecemeal approach, the use of a person-job typology allows for the examination of many important theoretical, practical, and ethical problems by test authors, counselors, and manpower planners.

The traditional strategy of counselors and personnel workers, encouraging people to prepare for the most widely available jobs, is supported by the correspondence between aspirations and actual employment revealed in Table 1. One interpretation of this correspondence is that, as a result of their

socialization, people come to have aspirations roughly in accord with employment opportunity—at least for type or field of work. The classification scheme used here makes this traditional counseling strategy even easier to implement. At the same time, the data in Table 1 also argue for the creation of an even better fit by revising old jobs or creating new jobs to increase the correspondence between what people want and what they must do. This change should improve the quality of life for the worker and help meet the productivity needs of employers.

The results raise strong doubts about some of the current strategies for assessing a person's vocational interests and imply some alternative strategies. The older and almost single-minded concern with predictive validity in vocational assessment is being questioned, and more popular goals in career development activities are to encourage the exploration of many alternatives and to equalize the outcomes of assessments for men and women (Rayman, 1974; Cole & Hanson, 1974; National Institute of Education, 1974).

Several developments have been advocated to foster these goals: (a) Revise inventory content (test items) to raise or lower the scores of men and women so that their average scores become identical or at least similar. (b) Provide separate norms for men and women. (c) Revise occupational titles or any other test content to delete any sexual reference so that both sexes will respond more frequently in nonsterotyped ways. (d) Imbed the use of an interest inventory in a carefully structured vocational orientation program.

So far the evidence for the efficacy of such developments is either not available or controversial. For example, the comparison of actual employment with normed interest outcomes (Table 1) implies that the use of sex norms may be misleading in vocational guidance, especially for women. For one assessment device, the use of norms results in 16 times as many Realistic assessment outcomes for college level women as actual Realistic employment. At the same time, the distributions of aspirations implies that normed interests do not correspond to what people want. In other words, large numbers of people are told that their interests resemble those appropriate for jobs that they usually do not get or aspire to. Norms sometimes appear to disrupt peoples' natural tendency to make choices in proportion to available work. In addition, predictive analyses (Gottfredson & Holland, in press) have shown that sex norms vitiate the predictive efficiency of the SDS for women; the same result can be expected for other assessments.

Even if the employment rates of men and women for all kinds of work were identical, a pooling of the data in Table 2 shows that the distributions of work requiring at least some high school remain grossly uneven; 37.9% of work is Realistic, 6.1% is Investigative, 1.6% is Artistic, 13.8% is Social, 20.0% is Enterprising, and 20.7% is Conventional. The corresponding percentages of employment of both sexes combined in work requiring at least some college or equivalent training (calculated from data presented by Gottfredson, Gottfredson, & Holland, 1974, Table 3) are Realistic, 4.5%; Investigative, 15.6%; Artistic, 5.5%; Social, 36.3%; Enterprising, 32.8%; and Conventional, 5.3%. Consequently the rectangular distributions produced by the use of sex norms would still fail to produce a satisfactory solution. More satisfying and effective strategies may be to use only raw scores, encourage vocational exploration at all levels, used normed interest assessments only with very young people, or adjust raw scores by additive constants or appropriate multipliers so that the distributions of assessment outcomes and employment reality or aspirations become at least similar.

Other attempts to adjust the scores of men or women by rewriting items either fail to create a significant or important difference (Gottfredson, in press) or probably result in lessened construct and predictive validity. Rayman (1974) produced a set of brief scales composed of "liked activities" which had almost equal means and standard deviations for men and women, but Gottfredson and Holland (in press) found that the predictive validity of activity items was inferior to that of simple aspirations or items consisting of occupational titles. Rayman also discusses the probable decreased validity produced as a result of his revisions.

Despite this controversial and negative evidence, publishers have already proceeded to revise inventories in plausible ways. Unfortunately, some of these revisions now appear injudicious in view of the evidence. Some revisions are more ill-advised than others. For example, changing "draftsman" to "draftsman/draftswoman" has no important effect on women's response rates even though such changes may increase the palatability of an inventory. In contrast, sex-based norms appear to have a negative rather than a positive effect. In addition, the requirement of a single form proposed by the Department of Health Education and Welfare[1] limits good solutions to a single item pool for all groups in spite of the evidence that errors of prediction are frequently smallest for group specific predictions (American College Testing Program, 1973, Chapter 7). The use of separate and equal inventories that might be better than common inventories may no longer be legal.

One cause of the current misunderstanding, confusion, and controversy is lack of consensus on the purposes of assessment. On the one hand, assessments are intended to provide the best possible information about a person—an assessment should yield valid, reliable, and comprehensive information. On the other hand, vocational assessments are conceived as a treatment designed to change attitudes and self-conceptions in systematic ways. As our daily exposure to commercial advertising shows these divergent goals do not always lead to the same message. Competent users of vocational assessments

[1]Proposed Rules for Nondiscrimination on the Basis of Sex. §86.34(c), 39 Fed. Reg. 22235 (1974).

must decide on their purposes if they are to make sense of the controversial literature and wise use of psychological tests.

This discussion is intended to emphasize the need for additional scientific investigation before further untested revisions of interest inventories are instituted. For the past several years sympathy for a good cause has overshadowed the traditional caution and skepticism of scientific psychological assessment. It is still unclear what the best and fairest strategies of vocational assessment are in a time of increased awareness of possibilities for change. Our results reveal some assessment errors and misjudgments, but they do not outline a single best strategy for future revisions or practices.

A theoretical interpretation of the subtype analyses in Tables 2 and 3 offers an explanation of some otherwise puzzling results. Those tables show that there are some categories in the classification in which few or no jobs exist. For example, no jobs in the Census listings were classified as Conventional-Artistic or Artistic-Conventional. This outcome corresponds with the extreme rarity of these same subtypes in SDS assessments (Gottfredson & Holland, 1975). The infrequent subtypes are usually the types which are *inconsistent* according to the theory on which the classification scheme is based (Holland, 1973). Inconsistent occupations make divergent demands on a person, and inconsistent people possess many oppositions in their personal characteristics. If we assume that society promotes convergent occupational activities and personal integration, then there should be only a few inconsistent occupations and people. Consequently, the concept of consistency appears strengthened by the rare occurrence of inconsistent subtypes among both people and jobs.

The subtype analyses also have a few practical implications for counseling persons with rare or inconsistent SDS codes. Such people will tend to find few if any jobs which correspond exactly to their personal characteristics. Other research (Holland, 1968; Holland, Gottfredson, & Nafziger, 1973) also implies that these people are less predictable and are poorer vocational decision makers than are persons with consistent codes. Consequently, inconsistent people probably require more counselor assistance than do people with consistent and common codes. Counselors can help by locating jobs that minimize person-job discrepancies, by promoting self-knowledge of a person's inconsistency or complexity, or by promoting some resolution of these inconsistencies, if it is possible or desired.

REFERENCES

American College Testing Program. *Assessing students on the way to college* (Vol. 1). Iowa City: ACT Publications, 1973.

American Council on Education. The American freshman: National norms for fall, 1972. *ACE Research Reports,* 1972, 7, whole No. 5.

Campbell, D. P. *Manual for the Strong-Campbell Interest Inventory T325 (Merged form).* Stanford: Stanford University Press, 1974.

Claudy, J. G. *Five year stability of Holland occupational types.* Paper presented at the Annual meeting of the American Educational Research Association, New Orleans, February 27, 1973.

Cole, N. S., & Hanson, G. R. *Impact of interest inventories on career choice.* Paper presented at the National Institute of Education Workshop on Sex Bias and Sex Fairness in Career Interest Inventories. Arlington, Virginia, March, 1974.

Crites, J. O. *Vocational psychology.* New York: McGraw-Hill, 1969.

Dolliver, R. H. Strong Vocational Interest Blank versus expressed vocational interests: A review *Psychological Bulletin,* 1969, 72, 95-107.

Flanagan, J. C., Shaycroft, M. F., Richards, J. M., Jr., & Claudy, J. G. *Five years after high school.* Palo Alto, Calif.: American Institute for Research and University of Pittsburgh, 1971.

Gottfredson, G. D. A note on sexist wording in interest measurement. *Measurement and Evaluation in Guidance,* in press.

Gottfredson, G. D., & Holland, J. L. Some normative self-report data on activities, competencies, occupational preferences, and ability ratings for high school and college students and employed men and women. *JSAS Catalog of Selected Documents in Psychology,* 1975, 5, in press.

Gottfredson, G. D., & Holland, J. L. Vocational choices of men and women: A comparison of predictors from the Self-Directed Search. *Journal of Counseling Psychology,* in press.

Gottfredson, L. S., Gottfredson, G. D., & Holland, J. L. *Using a theoretical typology to understand the congruence of people and jobs.* Unpublished manuscript, Johns Hopkins University, Center for Social Organization of Schools, 1974.

Holland, J. L. Explorations of a theory of vocational choice: VI. A longitudinal study using a sample of typical college students. *Journal of Applied Psychology,* 1968, 52, 1-37.

Holland, J. L. *Professional manual for the Self-Directed Search.* Palo Alto, Calif.: Consulting Psychologists Press, 1972.

Holland, J. L. *Making vocational choices: A theory of careers.* Englewood Cliffs, N.J.: Prentice-Hall, 1973.

Holland, J. L., & Gottfredson, G. D. Predictive value and psychological meaning of vocational aspirations. *Journal of Vocational Behavior,* 1975, 6, 349-363.

Holland, J. L., Gottfredson, G. D., & Nafziger, D. H. *A diagnostic scheme for specifying vocational assistance.* Research Report No. 164. Baltimore, Md.: Johns Hopkins University, Center for Social Organization of Schools, 1973. (ERIC No. ED 087 883)

Holland, J. L., & Lutz, S. W. The predictive value of a student's choice of vocation. *Personnel and Guidance Journal,* 1968, 46, 428-436.

Nafziger, D. H., Holland, J. L., Helms, S. T., & McPartland, J. M. Applying an occupational classification to the work histories of young men and women. *Journal of Vocational Behavior,* 1974, 5, 331-345.

National Institute of Education. *Guidelines on testing for assessment of sex bias and sex fairness in career interest inventories.* Washington, D.C.: Author, 1974.

Prediger, D., & Hanson, G. *Definitions of sex-restrictive and sex-biased reporting procedures for interest inventories.* Ad hoc paper presented at the National Institute of Education Workshop on Sex Bias and Sex Fairness in Career Interest Inventories, Arlington, Virginia, 1974.

Prediger, D. J., Roth, J. D., & Noeth, R. J. *Nationwide study of career development: Summary of results.* ACT Research Report No. 61. Iowa City: The American College Testing Program, 1973.

Rayman, J. *Sex and the single interest inventory: The empirical validation of sex balanced vocational interest inventory items.* Unpublished doctoral dissertation, University of Iowa, 1974.

Super, D. E. Vocational development theory: Persons, positions, processes. In J. M. Whiteley and A. Resnikoff (Eds.), *Perspectives on Vocational Development.* Washington, D.C.: American Personnel and Guidance Association, 1972.

Trow, W. C. Phantasy and vocational choice. *Occupation,* 1941, **20**, 89-93.

U.S. Bureau of the Census. *Census of Population: 1970, Subject Reports, Final Report PC (2)-7A Occupational Characteristics.* Washington, D.C.: Government Printing Office, 1973.

U.S. Department of Labor, Manpower Administration. *Dictionary of Occupational Titles. Vol. II: Occupational Classification.* Washington, D.C.: Government Printing Office, 1965.

Viernstein, M. C. The extension of Holland's occupational classification to all occupations in the Dictionary of Occupational Titles. *Journal of Vocational Behavior,* 1972, **2**, 107-121.

Walsh, W. B. *Theories of person-environment interaction: Implications for the college student.* Iowa City: American College Testing Program, 1973.

Whitney, D. R. Predicting from expressed vocational choices: A review. *Personnel and Guidance Journal,* 1969, **48**, 279-286.

Received: November 14, 1974.