DOCUMENT RESUME

ED 067 968 HE 003 378

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TITLE The Accuracy of Self-Administration and Scoring on Holland's Self-Directed Search.
INSTITUTION Maryland Univ., College Park. Counseling Center.
PUB DATE [72]
NOTE 16p.; Research Report # 7-72

EDRS PRICE MF-$0.65 HC-$3.29
DESCRIPTORS *Aptitude Tests; *Higher Education; *Occupational Tests; *Testing; *Test Reliability
IDENTIFIERS *Hollands Self Directed Search; SDS

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THE ACCURACY OF SELF-ADMINISTRATION AND SCORING ON HOLLAND'S SELF-DIRECTED SEARCH

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Abstract

This study assesed the extent to which Ss commit various types of errors when completing Holland's Self-Directed Search (SDS) entirely on their own. Nearly all Ss made some type of error and approximately half of the Ss made errors which affected their final three-letter summary codes. Almost one-fifth of the Ss made errors resulting in an incorrect high-point code. Whether or not Ss made errors that affected their summary codes was unrelated to the extent to which they were interested in knowing more about occupations or academic majors they might like. Neither were such errors related to whether Ss felt the occupations suggested by their summary codes seemed reasonable. Only slightly over one-third the Ss actually did feel that the occupations seemed reasonable.

THE ACCURACY OF SELF-ADMINISTRATION AND SCORING

ON HOLLAND'S SELF-DIRECTED SEARCH (SDS)

There has been a major need in vocational psychology and counseling for a short, self-administering and interpreting instrument that efficiently summarizes an individual's interests and abilities and, at the same time, links them to relevant occupations. Most vocational interest inventories must be machine scored at a central location. In addition, if the results are being used for guidance purposes they must be interpreted to the counselee by a trained counselor. Ideally, an instrument which the individual could score and interpret himself would eliminate the time lag involved in machine scoring and even obviate much of the need for face-to-face counseling. Thus, the instrument would be highly economical in terms of time, effort and money. Such an instrument, part of a larger vocational-guidance system, has recently been developed (Holland, 1971a) and preliminary research suggests that simply completing (including self-interpretation) it has a desirable effect on the vocational development of the subject (Zener & Schnuelle, 1972).

The Self-Directed Search: A Guide for Educational and Vocational Planning (SDS; Holland, 1971a, 1971b) is a self-administering, self-scoring and self-interpreting instrument based on Holland's (1966) theory of vocational choice. The theory asserts that the choice of a vocation is a reflection of one's personality, and that essentially there are six vocationally-relevant personality types: realistic, investigative, artistic, social, enterprising, conventional. Each type has a corresponding (same-named) occupational environment with which it is compatible. Each of the occupational environments, in turn, consists of a number of occupations which reflect that environment. Thus, the SDS enables people to assess their personality types (resemblence to each of the six theoretical types)

and determine the resulting occupations for which they would be suited (Holland, Viernstein, Kuo, Karweit & Blum, 1970)

A critical question about an instrument such as the SDS focuses on whether individuals who administer it to themselves proceed to score it accurately. Inability to do so would seriously attenuate the instrument's reliability and, of course, validity. Thus, the major purpose of the present study was to examine the accuracy of self-administration and scoring on the SDS. Research indicates that motivated subjects make fewer errors in taking tests than do non-motivated Ss (Anastasi, 1968). Relatedly, the second purpose of the study was to gather evidence on whether the accuracy of self-administration and scoring on the SDS was affected by subjects' degree of interest in learning more about what occupations and academic majors they might like. A final objective was to determine if the extent to which Ss agree with their results on the SDS was related to accuracy of self-administration and scoring.

Method

Subjects and Administration

As part of a summer orientation program, 221 incoming freshmen at the University of Maryland, College Park, completed the SDS in one group. After briefly describing the SDS, proctors distributed it to the Ss and left the testing room, returning after giving all Ss time enough (60 minutes) to complete it. Three items were added to the Assessment Booklet (described below) of the SDS. On the front cover, Ss were asked to indicate the extent to which they were interested in knowing more about what occupations they might like and what academic major they might like. Ratings for these items were on a four-point Likert scale (1 = not interested, 4 = very interested). After completing the SDS Ss were asked to rate the extent to which they agreed that

their final summary codes were reasonable (1 = strongly agree, 5 = strongly disagree).

The SDS: Self-Administration and Scoring

The SDS consists of two booklets. S fills out the Assessment Booklet which yields a three-letter occupational code indicating the three personality types to which he is most similar. He then uses this code to search for suitable occupations in the Occupations Finder, a booklet that contains occupational titles which subsume about 95 percent of the labor force. Since the present study focuses on errors made in completing the Assessment Booklet, the paragraph below will present the procedures Ss must follow in completing that booklet.

Ss begin in the Assessment Booklet by listing the occupations about which they have daydreamed and then finding the three-letter code for each occupation. Following this they indicate whether they like or dislike 11 activities reflecting each of the six occupational environments (thus, 66 activities in sum). Ss then rate their competencies in the same manner, following which they indicate whether they would like or dislike 14 occupations reflecting each of the six environments. The next step consists of rating on a seven-point scale self-estimates of abilities in 12 general areas (e.g., artistic ability, sales ability), two each reflecting each of the six occupational environments in Holland's scheme. From this S derives the three-letter codes for the two sets of six general areas. The final steps in completing the Assessment Booklet consist of summing and plotting on graphs scores for each of the first three steps indicated above (competencies, occupations, abilities), and determining the three-letter codes for each step. Ss transfer to another table the number of times each of the six possible letters appeared first, second and third in the four summary codes for activities, competencies, occupations and self estimates of abilities. The last step in completing the Booklet is to (a) multiply by three the number of times each letter (e.g.,

R for Realistic, I for Investigative) appeared in first place in the four summary codes, (b) multiply by two the number of times each letter appeared in second place, and (c) multiply by one the number of times each letter appeared in third place. The end result of these operations is a score for each of the six letters (R I A S E C). The three highest scores compose S's final summary code upon which he bases his search for suitable occupations in the Occupations Finder.

Analysis of Errors

The study of the accuracy of Ss' self-administration and scoring was made by three undergraduate research assistants. One assistant first re-scored all of the Assessment Booklets (219). Then, to assure that errors were not committed in the re-scoring itself, the two other assistants again re-scored approximately one-half the booklets each. Thus, all booklets were re-scored by two assistants. In cases where two assistants' re-scoring and noting of errors by S did not coincide (about 20 percent of the time), the two assistants discussed their lack of agreement until agreement was reached.

Analysis was made of six types of errors. Addition errors indicated those S made in summing his "yes" or "like" responses to the items reflecting each of the six occupational environments for the Activities, Competencies and Occupations sections of the Booklet. Rating errors reflect mistakes S made in completing the graphs on Self-estimates of Ability, Activities, Competencies and Occupations and determining his three-letter code from each graph. Rating errors were cumulative in the sense that if S made an addition error he would necessarily produce an incorrect graph. Summary-table errors indicate errors in counting the number of times each letter (i.e., R I A S E C) appeared first, second or third in the four summary codes for Self-Estimates, Activities, Competencies and Occupations. Summary-table errors also reflect mistakes in

multiplying and summing that are involved in this last step from which S's final three letter summary code is derived. To some extent summary-table errors are also cumulative.

The re-scoring of each S's Assessment Booklet allowed the judges to determine whether or not S made three additional types of errors: (a) whether scoring errors produced incorrect final summary codes (one or more of the three letters excluded or an incorrect ordering of the three letters in the code); (b) whether scoring errors produced a code in which one or more of the letters that should have been included was not (and thus an inappropriate letter was included); (c) whether scoring errors produced an incorrect high-point code (the personality type which S most resembles). It should be noted that these last three types of errors are by far the most serious, since they directly affect the occupations for which S will find himself suitable when he searches the Occupations Finder.

Results

Table 1 presents the number and percentage of Ss who made the various types of errors. It can be seen that nearly all Ss made some type of error and that most of these were made in transferring scores to graphs, determining summary codes for each graph and in completing the Summary Table. In about one-half the cases Ss made errors that did affect their final summary code (ordering change or appropriate letter omitted - inappropriate one included), while about one-fifth the Ss made errors which produced an incorrect high-point code.

Insert Table 1 About Here

Subjects reported a high degree of interest in learning more about academic majors and occupations they might like. In response to the item asking Ss to

rate this variable, 135 (62%) claimed to be "very interested", 55 (25%) "somewhat interested", 19 (9%) "slightly interested" and 9 (4%) "not interested". The similarly-worded item asking Ss about academic majors elicited almost identical responses: 133 (61%) "very interested", 53 (24%) "somewhat interested", 21 (10%) "slightly interested", 11 (5%) "not interested".

Perhaps because it was placed at the end of the Assessment Booklet, only 123 (55%) of the Ss responded to the item asking them to indicate the extent to which they agree that their summary-code occupations seemed reasonable to them. A wide distribution of responses emerged on this item: 20 (16%) "strongly disagree", 24 (20%) "disagree", 34 (28%) "neutral", 38 (31%) "agree", 7 (6%) "strongly agree".

To determine if interest in learning about suitable academic majors and/or occupations was associated with errors on the SDS, and if errors, in turn, were related to Ss' agreement that his results were reasonable, correlations were computed between the relevant variables. Only the three indices of errors in the final summary code were employed in this analysis, since such errors are the ones which are genuinely undesirable. (Errors in addition, rating and completing the summary table are undesirable only inasmuch as they change the final summary code.) The intercorrelations are presented in Table 2.

Insert Table 2 About Here

Table 2 reveals that while Ss' interest in learning more about occupations and academic majors they might like are highly intercorrelated ($r = .70$), neither of these variables is associated with any of the three types of scoring errors. In addition, whether or not Ss make such errors is unrelated to the extent to which they feel their results are reasonable.

To assess whether interest in learning more about suitable occupations and suitable academic majors interacted in affecting errors in Ss' summary code a 2 x 2 analysis of variance for unequal n's was computed for each of the three measures of summary-code errors. Interest in learning about suitable occupations, the first main effect, was dichotomized so the Ss who claimed to be "very interested" (n = 135) represented one level and those claiming to be somewhat, slightly or not interested (n = 83) represented the other level. The second main effect, interest in learning about suitable academic majors, was similarly divided into two levels (very interested = 133; somewhat, slightly and not interested = 85). The ANOVA revealed that the interaction of interest in learning about suitable majors and occupations did not approach significance ($p > .05$) in affecting any of the three types of summary-code errors.

Discussion

In summary, nearly all Ss in the present study made some type of error in scoring their SDS results. Approximately one-half made errors which affected their final, three-letter summary code in some way (incorrect order, appropriate letter omitted), and almost one-fifth committed errors resulting in an incorrect high-point code. While the effect of such errors on the reliability of the SDS summary code cannot be assessed directly from these data, O'Connell and Sedlacek's (1971) research provides suggestive evidence. These researchers obtained coefficients of stability for corrected summary codes that were appreciably higher (.20 or more for four of the six scales) than coefficients reported by Baldwin (1971) for uncorrected codes, despite the fact that the time between the initial and later test was 7-10 months in the O'Connell-Sedlacek study and only three weeks in the Baldwin study. Thus, it would

appear that the kinds of errors revealed in the present study have a serious effect on the reliability of the SDS.

It will be recalled that the SDS was administered during freshman orientation and that the administrators left the testing room (a proctor remained) following distribution of the instrument. Thus, the SDS was truly self-administered and scored. This raises the question, however, of whether the error rates may have been reduced by careful monitoring. While a definitive answer is not available, recent research does suggest an affirmative answer. In the O'Connell and Sedlacek (1971) study, where careful monitoring was conducted, only 71 percent of the Ss, as compared to 92 percent in the present study, made some type of error. In addition, Zener and Schneulle (1972) found lower error rates than in the present study, despite the fact that they gave the SDS to high school students. In their investigation one monitor per 25 Ss was available to answer questions. Taken together these studies suggest that, while the SDS is purported to be self-administering and scoring (Holland, 1971a, 1971b), it is important to have monitors available to help with scoring questions, at least when the instrument is used with large groups (one of its suggested uses, cf. Holland, 1971a, p6).

It was surprising that Ss' expressed interest in learning more about suitable occupations or majors was unrelated to whether they made scoring errors on the SDS. It was assumed that such interest would affect Ss' interest in taking and carefully scoring the SDS, but it appears that this may not be the case. Additional research is needed to examine the effect of actual interest in taking the SDS on error rates. However, the present results do suggest that self-reported interest in learning more about suitable occupations or majors is not a variable in SDS scoring accuracy.

The finding that errors which affect the final summary code are unrelated to the extent to which Ss feel their summary-code occupations are reasonable may seem to indicate that summary-code errors do not have consequences that are as negative as one might expect. Instructions in the Assessment Booklet, for example, ask Ss to search the Occupations Finder for all possible arrangements of their code. Thus, an appropriate letter would have to be omitted from the three-letter code (and an inappropriate one included) for S to be unable to identify an appropriate occupation in the Finder. Such an explanation is negated, however, by the fact that errors resulting in the omission of an appropriate letter from the code were unrelated to feeling that occupations suggested by the final code were reasonable. A more likely explanation of the lack of association of errors to degree of agreement-disagreement is that incoming freshman know relatively little about what occupations are compatible with their personalities. As a result of this lack of knowledge, occupations based on an incorrect summary code (not entirely incorrect) seem as reasonable to such students as do occupations derived from a completely accurate code.

It seems noteworthy that only 37 percent of the Ss who responded to the item on reasonableness either agreed or strongly agreed that their summary-code occupations seemed reasonable. Conversely, 36 percent either disagreed or strongly disagreed and 28 percent gave a neutral response. Such a distribution indicates that the SDS (particularly when it is truly self-administered, scored and interpreted) may have less appeal to university students than the author of the instrument has suspected (Holland, 1971b, p. 175). Since the notion of a self-directed search does appear to have much merit (cf. Holland, 1971a, 1971b), research is needed to determine why such a relatively large

proportion of students may not feel their results in the SDS are reasonable. A beginning study along these lines by Collins and Sedlacek (1973) revealed that entering college students who obtained SDS summary codes linked to occupations not requiring college tended to be dissatisfied with their results.

At a minimum the present results imply that unaided completion of Holland's SDS by incoming college freshmen during orientation results in an appreciably higher error rate than would seem desirable. While at least one study (Zener & Schnuelle, 1972) supports the value of the instrument in vocational guidance, the reliability (and thus validity) of the SDS is attenuated by scoring errors. The authors' impression is that many such errors could be eliminated by a clearer organization of the Assessment Booklet and a simplification of the self-scoring procedures. Such steps seem warranted in light of the many advantages Holland (1971b) had indicated are inherent in a self-directed search for one's educational and vocational goals.

References

Anastasi, A. Psychological testing (3rd ed.). N. Y.: McMillan Company, 1968.

Baldwin, T. Test-retest reliability of the SDS summary code. Unpublished report. Center for Social Organizations of Schools, Johns Hopkins University, 1971.

Collins, A. M. & Sedlacek, W. E. A comparison of satisfied and dissatisfied users of Holland's Self-Directed Search. Journal of Counseling Psychology, 1973, in press.

Holland, J. L. A counselor's guide for use with the Self-Directed Search: A guide to educational and vocational planning. Palo Alto, California: Consulting Psychologists Press, 1971 (a).

Holland, J. L. A theory-ridden, computerless, impersonal vocational guidance system. Journal of Vocational Behavior, 1971 (b), 1, 167-176.

Holland, J. L., Viernstein, M. C., Kuo, H., Karweit, N. L. & Blum Z. D. A psychological classification of occupations. Research Report No. 90, Center for Social Organization of Schools, Johns Hopkins University, 1970.

O'Connell, T. J. & Sedlacek, W. E. The reliability of Holland's Self-Directed Search For Educational and Vocational Planning. Counseling Center Research Report #6-71, University of Maryland, 1971.

Zener, T. B. and Schnuelle, L. An evaluation of the Self-Directed Search: A Guide To Educational And Vocational Planning. Research Report No. 124, Center for Social Organization of Schools, Johns Hopkins University, 1972.

Table 1

Number and Pct. of Ss Making Different Types of Errors

Type of Error	Number[1] of Ss	Number Making Errors	Percentage Making Errors
Addition	221	42	19
Rating	221	206	92
Summary Table	217	199	89
Errors Affecting Final Code	217	122	55
One or More Appropriate Letters Omitted in Code	217	104	47
High-Point Code Incorrect	217	40	18

[1]221 Ss began the SDS; 4 of these discontinued when they reached the summary table.

Table 2

Relationship of Errors to Interest in Knowing More About Suitable Majors and Occupation and to Agreement With Results[1]

	1	2	3	4	5	6
1. Interest in Finding Suitable Major	1.00	.70*	-.04	.00	.05	.04
2. Interest in Finding Suitable Occupation		1.00	.03	.01	.07	.01
3. Agree that Results Are Reasonable			1.00	.09	.09	.02
4. Made Errors Affecting Code				1.00	.75*	.35*
5. Made Error Resulting in Letter Omitted from Code					1.00	.21*
6. Made Error Producing Incorrect High-Point Code						1.00

[1]Correlations among 1, 2 and 3 above were Product-moment r's; those among 4, 5 and 6 were Phi coefficients; those of 1, 2 and 3 with 4, 5 and 6 were Point-biserial correlations.

* = $p < .01$