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Research Note 84-105

A METHODOLOGICAL EXAMINATION OF WESBROOK'S (1980)
MEASURE OF SOLDIER ALIENATION

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Research Institute for the Behavioral and Social Sciences

June 1984

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84 09 10 036

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER Research Note 84-105	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) A METHODOLOGICAL EXAMINATION OF WESBROOK'S (1980) MEASURE OF SOLDIER ALIENATION		5. TYPE OF REPORT & PERIOD COVERED <i>Research Note</i>
		6. PERFORMING ORG. REPORT NUMBER <i>N/A</i>
7. AUTHOR(s) Douglas H. Macpherson, Douglas S. Holmes and Stephen S. Fugita		8. CONTRACT OR GRANT NUMBER(s)
9. PERFORMING ORGANIZATION NAME AND ADDRESS U. S. Army Research Institute for the Behavioral and Social Sciences, 5001 Eisenhower Ave., Alexandria, VA 22333		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS 2Q263743A794
11. CONTROLLING OFFICE NAME AND ADDRESS		12. REPORT DATE June 1984
		13. NUMBER OF PAGES 23
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		15. SECURITY CLASS. (of this report) <i>Unclassified</i>
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Alienation Wesbrook Methodology		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Wesbrook (1980) proposed and tested the hypothesis that there is a negative correlation between sociopolitical alienation (estrangement, separation from society) and the military efficiency of the junior enlisted soldier. Alienation was measured with a 41-item questionnaire and military efficiency with commander rat- ings of soldiers' job performance and reliability. Results sup- ported the hypothesis.		

A two part analysis of Westbrook's work was undertaken. The first was a critical reading of the available social science literature on alienation and a detailed examination of Westbrook's work (Holmes, Macpherson, and Fugita, in press). The other was an empirical analysis of the psychometric properties of the Westbrook instrument. This paper reports the results of the second effort.

Although Westbrook's total scale had adequate internal consistency, none of his dimensions did. More problematic was the finding that when the subscales were intercorrelated there were, proportionately, almost as many theoretically inappropriate as appropriate relationships. Further, given the assumption of orthogonal dimensions, a procrustean bed analysis did not support Westbrook's claim that his questionnaire represented a successful operationalization of his theory. In addition, the principal factors analysis provided only moderate support for Westbrook's operationalization of his dimensions.

It follows from the findings reported in this paper, and from our earlier critique of the alienation literature and of Westbrook's research effort, that there is little reason to expect his dimensions and subscales to be useful in further empirical work. At the same time, Westbrook's reported relationships between his 41 items and commanders' ratings, when combined with our findings of a relationship with a behavioral measure of alienation and with reported willingness to go into combat, suggest that Westbrook's individual questionnaire items should be considered for further methodological work. The goal of this effort should be on developing one or more alienation scales which are discriminably different from currently existing scales and are of practical importance to the Army.

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A METHODOLOGICAL EXAMINATION OF WESBROOK'S (1980)
MEASURE OF SOLDIER ALIENATION

BRIEF

Requirement:

Research results indicating that sociopolitical alienation and military efficiency of junior enlisted soldiers are negatively correlated led ODCSPER to identify the following near-term human research issue: What is the potential impact, if any, of soldier alienation on the ability of units to deploy rapidly and fight effectively? Requirement was to determine if a research effort could provide near-term answers.

Procedure:

Psychometric analyses of Wesbrook's alienation instrument were performed on data collected from 300 soldiers at an Army Reception Station. Specifically, Cronbach's alpha was used to measure the internal consistency of the total instrument, dimensions and subscales. Procrustean bed, principal factor analysis, and correlations with conceptually related measures were calculated to measure construct validity.

Findings:

The psychometric properties of Wesbrook's instrument are, at best, marginal. However, the measure is significantly related to self-reported willingness to go into combat.

Utilization of Findings:

Army efforts to answer the near-term human research issue (identified under Requirement) -- which depended upon availability of an adequate questionnaire measure of alienation -- were discontinued.

Inclusion of some of Wesbrook's items in continued methodological work is suggested.

Wesbrook (1980) proposed and tested the hypothesis that there is a negative correlation between sociopolitical alienation (estrangement, separation from society) and the military efficiency of the junior enlisted soldier.

Alienation was measured with a 41-item questionnaire and military efficiency with commanders' ratings of soldiers' job performance and reliability. His results supported the hypothesis. Wesbrook suggests that the following are implications of his findings: (1) Improvements in organizational climate factors such as leadership, instruction, incentives, and working conditions are not apt to reduce markedly the number of ineffective soldiers in the Army. (2) Reducing the level of alienation in society as a whole is the ultimate solution to the problem of large numbers of ineffective soldiers in today's Army. (3) Drawing a more representative sample of citizens for the Army, rather than recruiting from what have traditionally been the most alienated elements of society, would provide a more immediate solution.

Our analysis consisted of two parallel efforts. The first involved a critical reading of the available social science alienation literature, and a detailed examination of Wesbrook's work (Holmes, Macpherson, and Fugita, in press). The other was an empirical analysis of the psychometric properties of the Wesbrook instrument. This paper reports the results of the second effort.

When we initiated our examination of Westbrook's questionnaire and the literature pertaining to alienation, we assumed that at least minimally adequate questionnaire measures of alienation had been developed and that our initial task was to identify and perhaps refine the better instruments. Our plan was to conduct longitudinal research with soldiers entering the Army in order to directly address one of the major implications of Westbrook's findings, namely, that alienation from the Army by substantial numbers of soldiers is attributable to characteristics of entering soldiers rather than being a response to organizational climate factors under the control of Army commanders. Hence, we administered Westbrook's alienation questionnaire and a number of other items to almost 300 soldiers at an Army Reception Station. This was conceived as the first step in methodological work intended to quickly provide measures of alienation suitable for use in a longitudinal research design. Following identification of suitable measures, our plan called for obtaining repeated measures of alienation from individual soldiers several times during their first year in the Army.

Consistent with our conclusion (Holmes et al., in press) that questionnaire measures of alienation suitable for use in longitudinal research are currently unavailable and that questionnaire development is required before longitudinal research is undertaken, the specific focus of

this paper is on examining the potential utility of Wesbrook's 41 items as a starting point in developing an adequate measure of alienation. Our approach consisted of examining our data base (Army receptees) with respect to three questions:

a. Do Wesbrook's dimensions and subscales hold up in our data base? Should all of the items be retained and if so, are there better ways to group them?

b. Recognizing that some of the items inquire about Army matters, is the questionnaire appropriate for use with entering soldiers with minimal exposure to the Army?

c. Do the 41 items appear to be meaningful when they are related to:

(1) other questionnaire measures of alienation?

(2) a behavioral measure of alienation?

(3) self reported willingness to deploy to combat situations?

(4) reasons for joining the Army?

It may be helpful here to elaborate on our approach to evaluate and potentially refine Wesbrook's measure. Our goal was to assess both the strengths and weaknesses of the instrument as a practical, Army-related tool. To accomplish this, a number of widely used psychometric techniques were employed. First, we utilized statistical procedures to determine if the items measure a single homogeneous dimension, the three dimensions theorized by Wesbrook, or

theoretically inappropriate dimensions. We then related his questionnaire to other measures which have either known or strongly face valid relationships to alienation. Further, because paper and pencil measures share a common method variance which may produce invalid data relationships (see Campbell & Fiske, 1959), we included a behavioral measure which should also be indicative of alienation. We then checked whether the instrument "worked" with the receptees in the same manner as with Westbrook's more seasoned and knowledgeable soldiers. This information is critical if the instrument is to be used to measure soldiers' initial perceptions of the Army or if the instrument is to be employed longitudinally. This characteristic of the instrument was examined in an exploratory fashion by comparing the similarity of some specific data relationships in the two samples.

The general issues discussed in the results section are internal consistency, temporal stability, construct validity and the practical utility of Westbrook's measures. Our format is to first discuss what each measure refers to, then to describe the information in our data base which is relevant to the questions posed, next to report the results, and finally, to state our conclusions.

Measures

The principle measure of interest was Westbrook's 41-item alienation scale. The items on this scale were

assigned, by him, to three theoretically specified dimensions: Meaninglessness, Cynicism, and Isolation. These dimensions were further broken down into theoretically specified subscales.

Several measures which bear on the construct validity of Wesbrook's scale were obtained. The first was Srole's nine item Anomia Scale (Robinson and Shaver, 1973). This scale is the most widely used measure of alienation in the social science literature. Two items from Scott's Personal Value Scale (Independence and Loyalty subscales) again as cited in Robinson and Shaver were administered. These items were added because they appeared to be measuring, in the opposite direction, a conceptually similar dimension to Wesbrook's scale. A four item scale measuring "willingness to go into combat" was taken from ARI's Questionnaire PT 5203 (R2) (O'Mara, F. E., and Babin, N. E., in press). Finally, the number of items which were skipped on the questionnaire was counted because it was predicted to be a behavioral correlate of the construct of alienation. We labeled this measure "normlessness", referring to a soldier's relative disregard of the authority-sanctioned norms to comply with requests for information.

Method

Subjects

The subjects were 294 receptees who were being processed through the Ft. Jackson Reception Station during

11-16 June, 1979. These participants had been in the Army less than one week. Some had a minimal amount of exposure to military discipline in the form of marching, others virtually none. Ninety percent of the sample were 20 or younger and 86% were in the military for the first time. Eleven percent had previously served in the National Guard or the Reserves. Fifty-one percent reported possessing a high school diploma.

Procedure

As part of a standard procedure at Ft. Jackson, receptees were assigned to platoons and companies based on their sex, geographic origins, and military specialty (infantry or not). Groups of receptees were requested from each company so as to assure adequate representation of each of the above categories in the final sample. The questionnaire was administered to five groups which ranged in size from 19 to 119 receptees. During the first session each item was read aloud, but in the later sessions each individual proceeded at his or her own pace.

Results

Internal Consistency

Internal consistency reflects the degree to which items are measuring the same thing. Nunnally (1978; p. 245) suggests that reliability of .70 is the minimum acceptable

for early stages of research. In this light, the obtained Cronbach's alpha of .71 for Wesbrook's total instrument is satisfactory. Alphas for the dimensions of Meaninglessness, Cynicism, and Isolation were .35, .57, and .54 respectively. The subscales of the dimensions had alphas which varied from .33 to .58. It appears that the total scale has adequate internal consistency but that the dimensions and subscales do not. The larger alpha of the total scale is probably principally due to its greater number of items.

With regard to the other multiple item scales, Srole's Anomia had an alpha of .62; Willingness to go into Combat, .85; and, Normlessness (skipped items), .82.

Temporal Stability and Construct Validity

A major issue to address is whether Wesbrook's scale is appropriate for use with new recruits. Since approximately one fourth of the items refer to Army-related perceptions, there was some question about their usefulness with soldiers whose experience in the Army is quite limited. One way to approach this question is to compare the strength and direction of the relationships in the present data with those of Wesbrook. If the domains being measured in the two sets of data are similar, the relationships (e.g., r's) should be similar. Table 1 illustrates one set of these relationships, the dimension intercorrelations found in the present study as compared with those reported by Wesbrook.

The only one of the three possible relationships between dimensions that differed significantly at the .01 level across samples was that between Meaninglessness and Cynicism.

At a more micro level of analysis, comparing subscale correlations in our data with those reported by Westbrook suggests that, generally, his correlations are of a similar order of magnitude. The dimension and subscale intercorrelation matrix is presented in Table 2. The boxed items identify the subscale correlations within a dimension. The correlations in the present data are somewhat lower than Westbrook's. Table 2 also demonstrates that the subscales of a given dimension generally correlate as well with the subscales from other dimensions and hence do not exhibit much in the way of convergent and discriminant validity. From the information available, it appears that the relationships in the two samples are quite similar. This suggests that Westbrook's scale can be used with new recruits as well as with experienced soldiers.

Westbrook's scale correlated .55 with Srole's scale ($p < .001$); $-.34$ ($p < .001$) with Scott's Loyalty items; $-.39$ ($p < .001$) with Willingness to Go into Combat and $.15$ ($p < .05$) with normlessness (number of skipped items). These relationships, although not strong, are all in the correct direction. Hence, three validity checks provided moderate

support for Westbrook's scale.

Factor Analysis and Procrustean Bed Procedure

The adequacy of Westbrook's three dimensional alienation theory to explain relationships among the items was also examined with an iterative principal factors routine. The customary methods for rotating dimensions attempt to provide the simplest description of each factor by rotating the factors until they are described by the fewest number of items. These methods are not the most appropriate for examining hypothesized relations between factors and items. In contrast, procrustean bed analysis (Schonemann and Carroll, 1970) rotates the data matrix to obtain a least square fit with the hypothesized matrix. Thus, this procedure provides for explicit tests of hypotheses relating empirical and theoretical matrices.

In order for the hypothesized relationships to be supported by the procrustean bed procedure, three theoretical and psychometric conditions must be satisfied. The first is that the number of dimensions in the theory must approximate the number in the data. The second is that the measures (items) of each dimension must be reasonably reliable. The final condition is that the various measures of a dimension do indeed measure the same dimension. Thus, the procrustean bed procedure applied to Westbrook's items may test the validity of Westbrook's operationalized alienation construct.

One possible interpretation of the theoretical matrix specified by Westbrook is that he conceived the three dimensions of alienation to be orthogonal. Thus, a theoretical item factor matrix was developed in which each item was given a weight of one on one dimension and zero on the other two dimensions. This matrix represents a perfect quartimax factor rotation solution. The empirical matrix was provided by a three factor principal factors analysis of the 41 Westbrook items. Pairwise deletion was used in the case of missing data so as to be able to use the data from more alienated subjects who were predicted to skip more items.

Inspection of the error matrix (Table 3), which is calculated by subtracting the matrix of best fit from the theoretically specified target matrix, suggests a poor fit between the empirical and theoretical matrices. If the fit were perfect, the error matrix would consist of zeros. Only one fifth of the values approached this criterion to the first decimal place. Thus, the procrustean bed analysis provided little support for the contention that Westbrook's questionnaire represented a successful operationalization of his theory.

In order to further explore the factor structure of Westbrook's scale, a principal factor analysis with varimax rotation with an eigen value of one as a cutoff was computed. This procedure extracted 14 factors which

accounted for 61% of the total variance in the data matrix.

The item loadings on the first three factors extracted did not generally appear to be consistent with Westbrook's conceptualization. The most interpretable factor extracted (second), which accounted for 19% of explained variance in the 14 factor solution, appears to measure trust in individuals and hence provides evidence for Westbrook's Cynicism (mistrust) dimension. The items loading .40 or higher on this dimension were: "Most people will take advantage of you if they get the chance" (.60); "People's ideas change so much that I wonder if we'll ever have anything to depend on" (.54); "Most people cannot be trusted" (.51); "Most politicians and high government officials cannot be trusted" (.45); "Most people are not very concerned about others" (.44). Westbrook correctly predicted that all the items except the one about "people's ideas changing" were measuring the Cynicism dimension. However, 14 other items which were classified as measuring Cynicism did not load on this factor .4 or higher.

The first factor extracted, which accounted for 25% of the explained variance, did not have item loadings which matched one of Westbrook's conceptual dimensions. The items which loaded on this factor were: "Most people are inclined to help others" (.60); "I feel that I am really accomplishing something in the Army" (.57); "Most often a person will receive justice through the law" (.46); "If the United

States got into a war tomorrow, the American people would provide the support necessary to win" (.46); "If a person is the victim of a crime and he knows who did it to him, the best way to get justice is to report it to the authorities and let them handle it through the legal system" (.45); "A person should care about what happens to other people, even if he does not know them personally" (.41); "As a soldier, I feel that I am really contributing something important to the American way of life." (.41). Three of the items, according to Westbrook, measure the dimension Isolation, two Cynicism and two Meaninglessness. Perhaps this factor might be labeled "belief in an ordered system."

The third factor (9% of the explained variance) consisted of two items: "In a riot or natural disaster, people should not be punished for taking from stores things that they have been deprived of in the past" (.54) and "Most of the senior NCO's and officers are not very concerned about soldiers like myself" (.49). Westbrook scores the first item as a measure of Isolation and the second as a measure of Cynicism.

Overall, one of the three factors extracted had item loadings which are somewhat supportive of Westbrook's dimension of Cynicism, however, the other two factors are clearly inconsistent with his theorizing. In part, the problem lies with the difficulty in clearly specifying the empirical relationships which should follow from the

abstract and amorphous constructs. Hence, additional work is needed to more clearly specify the conceptual relationships and create adequate psychometric measures of them.

Practical Consequences

Wesbrook's findings that alienation scores of junior enlisted men are negatively related to officers' ratings of their military efficiency (not considering problems with his methodology and analysis) was a potentially important, policy-related result. In order to explore other significant mission-related relationships with alienation, we included in our questionnaire a previously developed ARI scale ("Willingness to Go Into Combat") and a behavioral measure of alienation (number of items skipped by the respondent on the questionnaire). The Pearson product moment correlation between Wesbrook's alienation measure and number of items skipped was .15 ($p < .05$), supporting the notion that Wesbrook's scale is capable of predicting socially important behaviors. The relatively low magnitude of the correlation should not be construed as a criticism of the power of Wesbrook's scale to predict because there are many possible reasons for skipping questionnaire items besides possessing an inclination to violate authority-sanctioned norms. Finally, even though part of the +.39 correlation ($p < .001$) of Wesbrook's scale with self-reported "willingness to go into combat" may be due to

shared method variance (paper-and-pencil questionnaire), it supports the notion that Westbrook's 41 items are measuring a potentially significant area or areas.

Conclusions

The adequacy of the operationalization of socio-political alienation was examined with traditional test construction methodology. Although Westbrook's total scale had adequate internal consistency, none of his dimensions did. More problematic was the finding that when the subscales were intercorrelated there were, proportionately, almost as many theoretically inappropriate as appropriate relationships. Further, given the assumption of orthogonal dimensions, the procrustean bed analysis did not support Westbrook's claim that his questionnaire represented a successful operationalization of his theory. In addition, the principal factors analysis provided only moderate support for Westbrook's operationalization of his dimensions.

It follows from the findings reported in this paper and from our earlier critique of the alienation literature and of Westbrook's research effort, that there is little reason to expect his dimensions and subscales to be useful in further empirical work. At the same time, Westbrook's reported relationships between his 41 items and commanders' ratings, when combined with our findings of a relationship

with a behavioral measure of alienation and with reported willingness to go into combat, suggest that Westbrook's individual questionnaire items should be considered for further methodological work. The goal of this work should be on developing one or more alienation scales which are discriminably different from currently existing scales and are of practical importance to the Army.

Footnotes

The Isolation dimension was composed of the four subscales Due Process, Upward Mobility, Social Responsibility, and Respect for Property. Cynicism was made up of Life in General, Army Life, and Government. Lastly, Meaninglessness was composed of Life in General and Life in the Army.

Reference Notes

1. U.S. Army Research Institute for the Behavioral and Social Sciences. PT5203a(RZ) Command Climate Questionnaire Version 1.

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Table 1
Dimension Intercorrelations for
the Present Study and for Westbrook's

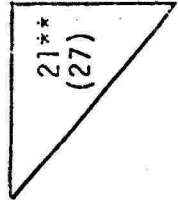
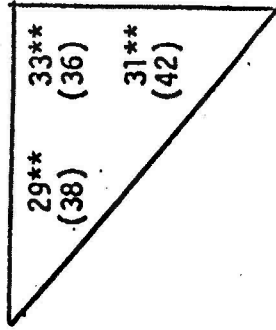
		Meaninglessness	Cynicism
Isolation	Present Study	.50	.49
	Westbrook	.58	.59
Meaninglessness	Present Study		.40
	Westbrook		.57

Table 2

Subdimension Intercorrelations

(Present Study Data on Top; Mesbrock Data on Bottom)

	12	13	14	C1	C2	C3	M1	M2
<u>Isolation</u>								
11 Due Process	25** (36)	23** (35)	22** (40)	37**	38**	37**	21**	30**
12 Upward Mobility on Merit		11 (11)	14 (08)	13	08	21**	08	26**
13 Social Responsibility			38** (45)	28**	17*	17*	30**	27**
14 Respect Property				19*	20**	07	33**	22**
<u>Cynicism Toward</u>								
C1 Life in General								
C2 Life in Army								
C3 Government								
<u>Meaninglessness of</u>								
M1 Life in General								
M2 Life as Soldier								



*p < .05
**p < .01

Table 3

Procrustean Bed Error Matrix

	1	2	3
1	.9054	-.2772	-.3472
2	.8752	-.0965	.0038
3	.8277	-.1987	-.2064
4	.2674	.6692	-.0761
5	.9640	.1462	-.3895
6	-.2764	.0583	.5817
7	.6362	-.0457	.1539
8	.7794	-.1586	.1875
9	.8544	-.1701	-.3222
10	-.1123	-.0466	.7067
11	.0722	.4703	-.3433
12	.7619	-.0880	-.2896
13	.0490	-.1944	.5122
14	-.1283	.7031	.2611
15	.5812	-.3283	.2595
16	-.0500	.7026	-.2707
17	-.0064	.5128	.2450
18	.6033	.0157	-.3541
19	-.2416	.7119	-.3225
20	.5808	-.0985	-.1660
21	.0706	.7616	-.5341
22	-.0827	.5638	.0544
23	.6658	-.0549	-.3166
24	.9260	-.3889	.2535
25	-.1221	.5921	.2250
26	.6623	-.2397	.0463
27	.5711	.0187	-.2711
28	-.0116	.8195	-.4096
29	-.2665	-.4448	1.3158
30	-.4367	-.1548	.8692
31	-.2180	.6452	.1611
32	-.4233	.8631	-.2316
33	.0642	.6209	.2156
34	-.2526	.6095	.2350
35	-.4053	.7593	-.1874
36	-.1208	-.3809	1.2689
37	-.1466	-.1506	.6751
38	.0940	.7512	.1305
39	-.3990	.8310	-.1817
40	-.4428	.0690	.7862
41	-.1920	.8171	-.2155