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An Empirical Evaluation of a Scale to Measure Occupational Aspiration Level[1]

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Data from 34,118 American high school students are used to evaluate the Occupational Aspiration Scale (OAS). The OAS is successively reevaluated for each of 16 subsamples (cells) generated by cross-classifying respondents by grade in school (9-12), sex, and socioeconomic status (SES). In each cell the OAS is found to be essentially unifactorial, and that factor is identified as level of occupational aspiration (LOA). The reliability of the OAS is slightly lower among females ($\bar{r}_{kk} = .681$) than among males ($\bar{r}_{kk} = .756$); it does not vary appreciably by grade or SES. The mean scores are lower for youth from low SES families than for those from high SES families, in accord with previous research. Mean OAS differences due to sex and grade are small. No important differences by age, sex, or SES are found in the standard deviations of the test scores. This and previously published data from small, local samples indicate that the reliability and validity of the OAS are sufficient for research on high school youth of both sexes and from both higher and lower SES levels.

The instrument called the Occupational Aspiration Scale (OAS) (Haller & Miller, 1971:110-113) is a short self-administered questionnaire which measures a young person's *level of occupational aspiration* (LOA). Although

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the LOA concept and the OAS instrument have only recently entered the research literature on the status attainment process, both have been available for some years. The LOA concept originated in the Lewinian school a generation ago (Lurie, 1939; Lewin, Dembo, Festinger, & Sears, 1944). For some time afterward it was not entirely clear how the concept might contribute to status attainment research. During the 1940s and 1950s it was often used in occupational choice research (Haller & Miller, 1971:33-36). The OAS was developed in 1957 to operationalize the concept. Within the last decade much has been learned about status attainment processes (Haller & Portes, 1973). This is largely due to the work of Blau and Duncan (1967) on the impact of fathers' statuses and other sociological variables on sons' occupational statuses and to analyses by Sewell and his colleagues (Sewell, Haller, & Portes, 1969; Sewell, Haller, & Ohlendorf, 1970; Sewell and Hauser, 1972) in which social psychological variables are introduced both to explain the transmission of status and to assess the effect of other interpersonal influences on status. The reader is referred to the appropriate citations for elaboration on the models. For present purposes it is sufficient to note that the models are efficacious in theoretically explaining and empirically accounting for the college educational and occupational prestige statuses attained by men. There is some evidence that the models are also applicable to women (Carter, 1972). Measurements of LOA have figured prominently and effectively in these social psychological analyses.

These latter projects have been carried on by sociologists, rather than psychologists, who have cast the Lewinian concept of LOA into the framework of social stratification, a key class of social structural phenomena. Within the stratification literature, occupational prestige differences have been found to be pertinent to status attainment in a variety of ways. Sociologists view the concept LOA as intimately linked to the occupational prestige hierarchy, which is central to stratification research (Siegel, 1971). As a concept, LOA is defined as a point, or limited range of points, with temporal bounds set by the near or distant future, and goal regional bounds set by one's higher hopes ("idealistic levels") and lower expectations ("realistic levels"), on the continuum of difficulty which is composed of the occupational prestige hierarchy. As a behavior orientation variable, a person's LOA directs his behavior toward obtaining an occupation at or near the goal region. This is a straightforward application of the Lewinian concept of level of aspiration to the occupational prestige hierarchy.[2]

[2]There are several different applications of the same logic. In educational status attainment research, a parallel application to education defines *level of educational aspiration* (LEA) as the number of years of formal education sought by a person. Both LOA and LEA have counterparts in the levels of expectation which "significant others" hold for a given person. The latter, LOX or *level of occupational* expectation, and LEA or *level of educational expectation,* are defined exactly as is LOA or LEA except that the goal region is selected by others for the person.

The main source of technical information about the OAS derives from a set of data which were collected in 1957 (Haller & Miller, 1971). Although the sample was small and was restricted to 17-yr-old males from the same small area (Lenawee County, Michigan), the data were sufficient to permit a quite detailed evaluation of the major characteristics of the OAS. On the basis of the analysis it was concluded that "the OAS appears to be a practical, reliable, and evidently valid instrument for measuring differential levels of occupational aspiration. It is probably the best available single combination of practicability, reliability and validity." These conclusions have been reinforced by subsequent research (Westbrook, 1966). However, although the OAS has been used in various research projects, mostly in sociology and education, to date it has been evaluated only on small samples, mostly males.

The purpose of this report is to present an evaluation of the OAS based on the responses of 34,118 high school students from throughout the United States. In the analysis, we present the rotated factor structure (orthogonal and oblique), the means ($\bar{X}$), the standard deviations (σ), and the reliabilities of the subsamples formed by cross-classifying the students by grade in school (grades 9, 10, 11, and 12), by sex, and by higher *versus* lower socioeconomic status (SES). Until now, such evaluative data have not been available for females, for students of different SES levels, or for those in different school grades. We here present appropriate data by which to assess the operating characteristics of the OAS within each of the cells formed by *combinations* of these variables.

METHOD

Data for these analyses were collected in 1961 from schools in 31 cities throughout the United States.[3] Complete data are available for 34,118 male and female students in grades 9, 10, 11, and 12. About 5000 cases, or 13%, of an original 39,161 were eliminated from the analysis because of missing data. The following information is available on the remainder: grade in school (9-12); sex; father's Socioeconomic Index (SEI) score (Duncan, 1961), a measure of the youth's family's socioeconomic status (SES); and each youth's response to each item of the OAS. For the present sample, the overall mean

[3]The following cities were included: Sacramento, California; Brookfield, Wisconsin; Bellflower, California; Des Plaines, Illinois; Azusa, California; Royal Oak, Michigan; Tucson, Arizona; Columbia, South Carolina; San Angelo, Texas; Greensburg, Pennsylvania; Syosset, Long Island, New York; Hagerstown, Maryland; Hanover, New Jersey; Hampton, Virginia; Oklahoma City, Oklahoma; Fairfield, Connecticut; Birmingham, Alabama; Katonah, New York; Charlotte, North Carolina; Kettering, Ohio; Columbus, Nebraska; Canton, Ohio; Mandan, North Dakota; Schenectady, New York; Kennett, Missouri; Newtonville, New York; St. Louis, Missouri; Middlebury, Vermont; Seattle, Washington; Longview, Washington; Portland, Oregon.

and standard deviation of the OAS total scores are 42.85 and 10.75, respectively.

Sixteen subsamples are formed by cross-classifying males and females by higher SES ($\bar{X}$ SEI = 66.08), and lower SES ($\bar{X}$ SEI = 25.54) using SEI = 46 as the cutting point, and by high school grade (9, 10, 11, and 12). These subsamples range in size from a low of $N = 1{,}352$ (low SES freshman boys) to a high of $N = 2{,}521$ (low SES sophomore boys). Ninth graders are underrepresented because not all sample schools include this grade. For each of the subsamples and for the total sample, we calculate five sets of statistics: (1) the correlations among all eight LOA items; (2) the mean of each item and the total score; (3) the standard deviation of each item and of the total score; (4) a factor analysis with quartimax orthogonal rotations (Neuhaus & Wrigley, 1954) and oblique rotations, independent cluster procedure (Harris & Kaiser, 1964); and (5) an estimate of the total OAS reliability, r_{kk} (Nunally, 1967:193), which is Cronbach's (1951) *alpha* (Bohrnstedt, 1970:89). The variance accounted for by each orthogonal factor and the correlations between the oblique factors are also calculated. Communality estimates are the squared multiple correlations as proposed by Guttman (1954). Tests of statistical significance are not used inasmuch as the subsample sizes are so large that almost any difference would be adjudged "significant," regardless of how trivial. Besides, we do not have a random sample of a known population.

Despite the latter fact, the sample is adequate for our purposes. Our strategy is to compare response patterns of subsamples based on variables of universal sociological significance: sex, age, and socioeconomic status. If we do not find important differences among these we can be fairly certain the same would be true for other samples encompassed by the same age and socioeconomic status levels. Systematic nontrivial differences by sex, age, or socioeconomic status might also be informative. If, however, large nonsystematic differences were to appear it would be impossible to draw any inferences and the safest conclusion would be either that the instrument by which LOA was measured is untrustworthy or that the sample is composed of sets of very different, but unidentifiable, classes of persons.

RESULTS

Factor structure. The first question concerns the factor structure of the items (idealistic and realistic, short-range and long-range) purporting to measure LOA. Space limitations prevent displaying all 16 sets of analyses,[4] but the reader is referred to Table 1 which presents the general form of the

[4]The complete set of tables appear in Luther B. Otto *et al.* "High school students' levels of occupational aspiration: variations by sex, socioeconomic status, and grade in school." Unpublished paper presented at the annual meetings of the Rural Sociological Society, College Park, Maryland (August) 1973. Copies are available by writing the senior author, Department of Sociology, Washington State University, Pullman, Washington 99163.

TABLE 1

Total Sample (N = 34,118)

	Item correlations										Rotated factor weights: Quartimax factors			Rotated factor weights: Oblimax factors		
	RS_1	IS_1	RS_2	IS_2	RL_1	IL_1	RL_2	IL_2	$\bar{X}$	σ	I	II	III	I	II	
RS_1	(27)								4.07	2.04	47	21	−02	51	40	
IS_1	17	(19)							6.42	2.65	40	−14	−05	33	42	
RS_2	40	22	(42)						3.55	2.41	61	21	−01	65	53	
IS_2	25	27	33	(33)					5.69	2.13	60	−12	00	50	57	
RL_1	27	15	35	27	(28)				5.04	2.21	50	13	05	52	45	
IL_1	15	17	19	29	21	(20)			6.55	1.89	41	−15	03	34	43	
RL_2	27	21	41	29	34	22	(33)		4.98	2.73	56	12	03	57	51	
IL_2	19	27	29	32	23	25	28	(28)	6.54	1.99	51	−15	−02	44	53	$r_{I\ II}$ = .829
Percent factor variance											91	9	0			
Percent total variance											26	2	0			

OAS total score data: $\bar{X}$ = 42.85; σ = 10.75; r_{kk} = .737.

TABLE 2

Correlations of Oblique Factors by Subsamples and Total Sample

Sex	SES	Grade in school			
		9	10	11	12
Females	Higher	.808	.803	.837	.819
	Lower	.817	.794	.769	.715
Males	Higher	.775	.830	.794	.756
	Lower	.780	.776	.783	.753

Total sample: $r_{I\ II} = .829$.

analysis and data for the pooled sample. The analyses show that each item in each subsample is highly saturated with a general factor. The common factor variance measured by this first factor, as calculated by means of a quartimax rotation, ranges from a low of 68% among low SES female seniors, to a high of 91% for low SES female freshmen. The second factor is always small. Its highest level is 30% for low status female seniors, and its lowest is 7% among high status senior females. In all subsamples besides the low status senior females (an unusual case), the minimum percentage of common variance accounted for by Factor I is 83%. Also, among these subsamples Factor II is never larger than 13%. Factor III, never more than 6%, is uniformly too weak to take seriously. Thus, the correlations and orthogonally rotated factor analyses show that for all practical purposes the OAS may be interpreted as a one-factor test, which is what it was intended to be. The factor may be identified as LOA.

Nonetheless, an examination was made of the loadings of Factor II. In each subset analysis there is some justification for interpreting it as a weak realistic-idealistic factor. To check this, an oblique rotation (Harris & Kaiser, 1964) was performed. Careful inspection of the resulting factor loadings and the correlations between the factors (Table 2) shows that it is not impossible to interpret the OAS as being composed of two highly correlated factors ($r = +.756$ to $r = +.837$). The substantive meaning of these factors is not clear: one might be a weakly defined realism-idealism factor, in which realism has the higher positive loadings; the other—which is a bit more prominent among females than among males and which, like the first, is weakly defined—may indicate an order of presentation effect. It seems to reflect the fact that each stimulus question is presented twice. The second presentation of an item appears to be more highly loaded on the factors than does the first. In any case, the high correlations between the factors after rotation to an oblique solution ($r = +.829$ over the total sample) reinforce the conclusion obtained by

TABLE 3

OAS Reliabilities (r_{kk}) by Subsamples and Total Sample

Sex	SES	Grade in school			
		9	10	11	12
Females	Higher	.690	.674	.686	.684
	Lower	.701	.662	.682	.668
Males	Higher	.732	.763	.744	.744
	Lower	.777	.767	.758	.763

Total sample: r_{kk} = .737.

calculating the orthogonal rotation. The correlations are so high that it is reasonable to interpret the results as indicating that all items are nearly saturated with one factor: LOA. The oblique factor correlations are so high that they can be interpreted as reflections of a strong second-order factor. This conclusion holds within each subsample formed of youths of both sexes, of higher and lower SES, and of grades 9 through 12.

Reliability. Cronbach's (1951) *alpha,* here called r_{kk} following Nunnally (1967), is the estimator of test reliability used. The data are summarized in Table 3. For the entire sample r_{kk} = .737. Around this value, the subsample values range from a low of r_{kk} = .662 (tenth grade girls of lower SES) to a high of r_{kk} = .777 (ninth grade boys of lower SES). Except for the influence of sex, the variations in r_{kk} are of no apparent consequence. The r_{kk} values for lower SES males are a bit higher in all grades than those for higher SES males, but this difference (at most .045) is trivial. Among males the differences by grade are of about the same magnitude. The SES and grade differences in the r_{kk} values of girls are unsystematic and small (the largest being .039 between ninth and tenth graders of lower SES).

The sex difference, while not trivial, is not very big. The mean reliability for the eight subsamples of females is $\bar{r}_{kk}$ = .681 and that for the males is $\bar{r}_{kk}$ = .756. The clear implication is that the OAS is slightly more reliable among the males of this sample than it is among the females, possibly because the LOA concept is more meaningful for males. Users will want to take this into account.

In summary, as estimated in this sample, the reliability of the OAS seems adequate for most research purposes. It is similar enough across grades in high school and SES levels to permit its being used without any serious worry concerning incomparability regarding these variables. The sex differences are large enough to make sex controls advisable when it is being used for either research or other purposes.

Means and standard deviations of total scores. The means and standard deviations of the OAS total scores are summarized by subsample in Table 4. The main conclusion is that those of higher SES have higher mean aspirations than do those of lower SES. This holds for each grade and for both sexes. Of course, this is a well-known phenomenon: lower SES youths ordinarily have lower mean LOA scores than do their higher SES age mates of the same sex (Sewell, Haller, & Straus, 1957). There is a slight, inconsistent, and probably inconsequential tendency for females to score lower than males. The small and unsystematic differences by grade within sex and SES levels appear to be of no consequence; in any case, they show no apparent trend.

Regarding the standard deviations, the main observations are these. First, within grade and SES level, females are slightly less variable than are males. Second, within sex and grade, higher SES youth are slightly less variable than are lower SES youth. Third and last, within sex and SES level there is no noticeable difference in variability by grade. Regarding the first of these, the fact that females are a bit less variable than males may be a reflection of the girls' perception of fewer opportunities at the top and (with marriage presumably possible) no great necessity for them to accept positions at the bottom. Alternatively, they may simply have perceived fewer opportunities at both the top and the bottom. Regarding the second finding, the slightly smaller variability of those in higher SES is probably due to their relative unwillingness, as compared to lower SES youth, to consider lower SES occupations. Regarding the third, the lack of grade-related trends is a bit surprising considering the emphasis a few years ago (Ginzberg, Ginsberg, Axelrod, & Herma, 1951) on supposed changes in "realism" and "fantasy" over time. One would have expected the means to be lower among students who are approaching the end of high school.

In any case, the differences in means and standard deviations appear to be due to sociological realities, not to artifacts of the OAS. They do not seem to indicate that the OAS is invalid.

DISCUSSION AND CONCLUSION

This large sample study complements earlier and more limited analyses (Haller & Miller, 1971; Westbrook, 1966) which demonstrate that the Occupational Aspiration Scale is a relatively reliable instrument by which to measure a youth's level of occupational aspiration. Its reliability is a bit higher for males than for females, but is little affected by SES or by grade in school. Factor analyses show that each item in the OAS is substantially saturated with a general LOA factor and that the Scale is not greatly contaminated by other factors. A study of the subsample differences in means shows them to vary by SES in the usual way. The study did not yield item patterns or subsample differences which would challenge its construct validity.

TABLE 4

OAS Total Score Means and Standard Deviations by Subsample

Sex	SES	*Means* Grade in school 9	10	11	12	*Standard deviations* Grade in school 9	10	11	12
Female	Higher	44.94	44.64	44.07	44.99	9.93	9.63	9.58	9.44
	Lower	40.36	40.17	39.76	40.56	10.59	9.66	9.65	9.43
Male	Higher	46.72	46.52	45.81	45.58	10.69	10.93	10.58	10.53
	Lower	41.16	39.90	39.77	40.82	12.03	11.72	11.29	11.01

This is not to say that the instrument may be applied heedlessly. The lowest levels of the SES range may not have been plumbed in this study and there is always a possibility that the Occupational Aspiration Scale will not work well among youth whose parents are at the bottom of the stratification system. Of course, this must be demonstrated, not presumed. The same may be said at the very top. Further, there is anecdotal evidence (not presented here) that females from remote regions or isolated ethnic groups may have more difficulty responding to the OAS items than do those in more urbanized areas, such as those studied here. Females from subcultures outside the mainstream may have rigid definitions of appropriate female occupational roles. However, this too should be demonstrated, not assumed. Finally, while the places where the data were collected included cities which are quite large, and suburbs of major centers, none of the schools were within the largest American cities. It may be that youth from the latter respond a bit differently to the instrument, although we have no data to suggest this. Perhaps it should be checked in future research.

In the meantime, it would appear that the OAS is an effective instrument for use in educational, sociological, and psychological field research.

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