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Abstract

The primary purpose of this study was to investigate motivational aspects of adolescents' vocational behaviors. A motivaticnal contributor to situations perceived as demanding excellence or success-failure is the anxiety level aroused by the success-failure cues in the situation. Subjects were 228 adolescents from grades nine through twelve in McDcwell County, West Virginia. The "Achievement Thematic Apperception Test (TAT), Mandler-Cowan's Test Anxiety Questionnaire for High School Students (TAQ), Occupational Prestige Scale (OPS), Haller's Occupational Aspiration Scale (OAS), and the Cccupational Questionnaire were administered. Results indicated that the TAT and the TAQ are significant multiple predictcrs of vocaticnal behaviors. When vocational behaviors are examined in terms of ccmbined motivaticnal conditions, statistically significant differences with regard to perception of occupational prestige, occupational aspiraticns and the prestige levels of the occupations chosen are observed between high achievement, lcw fear of failure and low achievement, high fear of failure groups. The findings underline the fact that vocational aspiration and the perceived prestige of an occupation play an important role in cccupational choice. (Author/KJ)

ACHIEVEMENT MOTIVATION AND ANXIETY AS DETERMINANTS OF VOCATIONAL CHOICE[1]

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Achievement Motivation And Anxiety As Determinants of Vocational Choice

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The primary purpose of this study was to investigate motivational aspects of adolescents' vocational behaviors. Vocational behavior is defined as any interaction between the individual and his environment which is related to work (Super, Overstreet, 1957).

Achievement motivation is the degree of competitiveness for excellence present in a given individual. As a relatively general and stable variable (McClelland, Atkinson, Clark, & Lowell, 1953), n Achievement[2] purportedly express itself in a variety of behaviors. Its relationships to risk-taking (Atkinson, 1957, 1958; McClelland, 1958; Atkinson, Bastian, Earl, & Litwin, 1960; Brody, 1963), and task performance (Atkinson & Reitman, 1956; Reitman, 1960; Feather, 1961, 1963; Weiner, 1965; Weiner and Rosenbaum, 1965), have been extensively explored. These and other numerous studies which are related to achievement motivation have generally obtained n Achievement scores from modified Thematic Appreception Test (TAT) protocols or its equivalence (McClelland, Atkinson, Clark, & Lowell, 1953; Atkinson, 1958; French, 1958) as measures of individual differences in the strength of achievement motivation, conceived as a relatively stable disposition to strive for success.

Another motivational contributor to situations perceived as demanding excellence or success-failure is the anxiety level aroused by the success-

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[2]The terms, achievement motivation, n Achievement, and need Achievement are used synonymously in this study.

failure cues in the situation. There have been an increasing number of studies using scores of the Mandler-Sarason Test Anxiety Questionnaire (Mandler & Sarason, 1952; Mandler & Cowan, 1958) as measures of individual differences in the strength of motive to avoid failure.

Mahone (1960) demonstrated that Ss who are low in achievement motivation and high in fear of failure tend to be more unrealistic in their vocational choice than Ss who are high in achievement motivation and low in fear of failure. Burnstein (1963) investigated the relationship of need achievement and fear of failure to aspiring to prestigeful occupations. His findings suggest that fear of failure is more closely related to occupational aspiration than is achievement motivation. Morris (1966) obtained his Ss' "resultant motivation" by standardizing the measures of n Achievement and test anxiety and determining the difference between the two standardized scores. The median split method was used to classify Ss into the high and low resultant motivation groups. He demonstrated that Ss high in resultant motivation chose occupations as if they were attempting an intermediate degree of risk and those low in resultant motivation chose as if they were avoiding an intermediate degree of risk.

The present study centers around the examination of achievement motivation and fear of failure as multiple as well as single linear predictors of adolescents' vocational behaviors. The criterion variables to be predicted by the two motivational measures include S's scores on the Occupational Prestige Scale (North and Hatt, quoted in Jobs and Occupations by National Opinion Research Center, 1947), Occupational Aspiration Scale (Haller, 1957), expressed Occupational Choice as coded by the modified classification scheme

of the Dictionary of Occupational Titles (1965) which is assumed to be based on the level of difficulty and responsibility of the occupation, and expressed Occupational Choice as coded by the National Opinion Research Center (1947) scheme which differentiates the occupational prestige levels. The two independent variables, n Achievement and fear of failure, are assessed by the n Achievement Thematic Apperception Test (McClelland, 1953) and Test Anxiety Questionnaire for High School Students (Mandler and Cowan, 1958). Questions investigated were as follows:

1. Are need Achievement and fear of failure two independent (uncorrelated) measures? If so, for the prediction of vocational behaviors such as the level of occupational aspiration, perception of occupational prestige and the kind of occupational choice, it was hypothesized that significantly more criterion variance would be accounted for by the multiple predictors (n Achievement and fear of failure combined) than by the single predictors (n Achievement and fear of failure as separate predicting variables). Uncorrelated variables, when combined, should allow significantly more accurate prediction of the criterion measure than when used separately.

2. Aside from the reported evidence that Ss high in achievement motivation and low in anxiety tend to be more realistic than Ss low in achievement motivation and high in anxiety (Mahone, 1960) and that Ss who are high in resultant motivation choose occupations of the type which requires an intermediate degree of risk and those low in resultant motivation choose those which requires especially high or low degree of risk (Morris, 1966), are there significant differences among the HL (the first letter refers to level of n Achievement, high or low; the second letter refers to fear of

failure, high or low), HH, LH, and LL groups in terms of the Ss' perceptions of occupational prestige, levels of occupational aspiration, and types of occupational choice? When Ss are classified according to the difference of normalized TAT and normalized TAQ scores, is there significant difference between the two groups of Ss who are high and low in resultant motivation in relation to their perception of occupational prestige, occupational aspiration levels, and nature of occupations chosen?

Methods

Subjects

The S's were 228 adolescent boys randomly drawn from the population which was defined as all 9th, 10th, 11th, and 12th grade male students enrolled in McDowell County, West Virginia schools during the school year 1966-67.

Instruments

The instruments used in this study were the n Achievement Thematic Apperception Test (TAT), Mandler-Cowan's Test Anxiety Questionnaire for High School Students (TAQ), Occupational Prestige Scale consisting of 20 occupations adapted from the North-Hatt scale (OPS), Haller's Occupational Aspiration Scale (OAS), and Occupational Questionnaire (OQ), which collected information concerning the S's background and occupational choice.

The n Achievement test (TAT) consisted of four pictures (1, 2, 7, 8; Atkinson, 1958) presented in a neutral classroom situation. Scoring was done by two trained graduate students with inter-rater reliability of .90. A short form of TAQ consisted of 32 items. It correlated .946 with the 48 item long form. Each item was graded on a 9 point scale with 1 representing

low anxiety level and 9 representing high anxiety level.

The OAS is an 8 item multiple-choice instrument designed primarily for use among male high school students. The total score is interpreted as a relative indicator of the prestige level on the occupational hierarchy which an individual views as a goal. The reliability of this scale is reported to be about .80. The OPS consisted of 20 occupations which were selected from the list of 90 used in the NORC study. S's were instructed to rank these 20 occupations on the basis of their opinion as to which occupation had the most prestige. Scoring was done by subtracting the ideal rank provided by the scale from the rank assigned by the S or vice versa for each occupation. The total score was then obtained by adding the discrepancy scores for all the 20 occupations. This represented the deviation, or accuracy of the S's perception of occupational prestige in relation to the ideal norm.

The S's occupational choice expressed in the Occupational Questionnaire was assigned two scores on the basis of two distinctively different systems of classification. The one-digit DOT classification scheme was used to organize the occupational data into skill level categories. Although the DOT categories are not strictly based upon a skill level analysis, a weighting system utilizing DOT categories was devised to order occupations in scalable hierarchy. On this basis DOT scores were generated. The skill level categories with their weights and corresponding DOT code classifications are as follows:

Skill level category	Weight	DOT code and classification
Highly skilled	1	0,1 Professional, Technical, and managerial
Skilled	2	2 Clerical and Sales 6 Machine trade 8 Structural work

Skill level category	Weight	DOT cod and classification
Semi-Skilled	3	3 Service 4 Farming, Fishery, Forestry 7 Bench work
Unskilled, Miscellaneous	4	5 Processing 9 Miscellaneous

The NORC score was obtained by assigning the ranking of the occupation in terms of its prestige level as classified by the National Opinion Research Center with, for example, 2 representing physician, 10 representing banker, 27 representing sociologist, 60 plumber, and so on.

Results

A non-significant correlation coefficient of -.116 (N = 214, see Table 1) was found between the levels of achievement motivation (TAT) and fear of failure (TAQ). This confirms Atkinson and Litwin's finding (1960) that indeed the measure of n Achievement obtained from TAT and the measure of fear of failure obtained from TAQ are uncorrelated and that they are not measures of the same variable.

Achievement motivation (TAT) correlated negatively with perceived occupational prestige (OPS) at -.241 ($p < .01$), correlated positively with the level of occupational aspiration (OAS) at .224 ($p < .01$), and correlated negatively with occupational choice coded by NORC at -.220 ($p < .05$). Higher need for achievement, in other words, was associated with lesser deviation from the accurate perception of occupational prestige, accompanied by higher level of occupational aspiration, and related to the choice of more prestigious occupation. There was no significant correlation, however, between n

Achievement and occupational choice coded by DOT.

Fear of failure (TAQ) correlated significantly with the perceived occupational prestige (OPS), level of occupational aspiration (OAS), and occupational choice (DOT and NORC) at .240 ($p < .01$), -.223 ($p < .01$), .180 ($p < .05$), and .264 ($p < .01$), respectively. Higher level of fear of failure was accompanied by less accuracy in the perception of occupational prestige level, lower level of occupational aspiration, and the choice of less skillful and less prestigious occupation. These findings and other correlations are summarized in Table 1.

Insert Table 1 here

It is important to point out that correlations among the dependent measures (OPS, OAS, DOT, and NORC) are rather high with coefficients ranging from .381 (OPS vs. DOT), the lowest, to .785 (DOT vs. NORC), the highest, all of these being significant beyond the .01 level.

Multiple correlations between the combined predictors (TAT and TAQ) and the criterion variables (OPS, OAS, Occupational Choice DOT, Occupational Choice NORC) showed a general improvement over the single predictions as described above. Multiple correlations with OPS, OAS, Occupational Choice DOT, and Occupational Choice NORC were boosted to .322, .300, .243, and .365, respectively. F tests were conducted to determine significance of a difference between each of these R's and each of the corresponding Y's. With only one exception that R of .243, predicting Occupational Choice DOT with combined predictors, is not significantly difference from Y of -.211,

predicting the same criterion with TAT, all R's are significantly greater than all the corresponding r's (see Table 2a and Table 2b).

Insert Table 2 here

Since TAT and TAQ are measures of two different and independent variables, Ss may be identified in terms of the combination of the two measures. Using the median-split method, thus, a 2x2 contingency table having four combinations (or cells) viz. (1) HL (high n Achievement, low fear of failure), (2) HH (high n Achievement, high fear of failure, (3) LH (low n Achievement, high fear of failure), and (4) LL (low n Achievement, low fear of failure) was created, and Ss were accordingly classified into four groups. The Ss' vocational behaviors were then compared in terms of the HL, HH, LH, and LL groups by analyses of variance and Duncan's New Multiple Range Tests. Mean differences among the four groups on OPS were statistically significant beyond the .001 level ($F = 10.996$). Duncan's test revealed that while the HH and LL groups were homogeneous, the LH group with the mean score of 101.6 was significantly different from the HL group with the mean score of 63.7. These indicate that Ss in the HL group would perceive occupational prestige levels more accurately, or with less deviation from an ideal norm, than Ss in the LL-HH group and the LH group. Mean differences on OAS were significantly different at the .001 level ($F = 5.914$). The LH, LL, and HH groups with mean scores of 37.6, 38.0, and 38.5, respectively, were homogeneous. The HL group with the mean score of 46.1 was significantly different from all other groups. Results show that Ss in the HL group tend to possess higher

occupational aspirations than Ss in the other groups. Mean differences of the four groups on Occupational Choice (DOT) were significant beyond the .05 level ($F = 2.396$). Multiple comparisons revealed that the HL group was significantly different from the HH-LL group but not different from the LH group. In other words Ss in the HL group would choose occupations which require significantly higher levels of responsibility and difficulty than Ss in the HH-LL group. Mean differences on Occupational Choice (NORC) were significant at the .001 level ($F = 6.391$). The HH, LL, and LH groups with mean scores of 43.5, 43.9, and 46.8, respectively, were homogeneous while the HL group with the mean score of 31.7 was significantly different from all other groups. Results indicate that Ss in the HL group tend to choose occupations with higher levels of prestige than Ss in the other groups. Table 3 summarizes these findings.

Insert Table 3 here

The technique employed by Morris (1966) in dividing the sample on the basis of the strength of the S's motive to approach success (Ms) and the motive to avoid failure (Maf) was used whereby the scores of each individual on the measures of TAT and TAQ were first standardized and the difference between these two standardized scores was determined. The resulting distribution of "resultant motivation" scores was then split at the median point and the S's were dichotomized into the high and low resultant motivation groups. The frequency distributions of high and low resultant motivation groups on OPS, OAS, DOT, and NORC are shown in Table 4.

Insert Table 4 here

The four 2 x 2 bivariate distributions gave the chi square values of 12.48 ($p < .001$), 3.96 ($p < .05$), 3.14 (NS), and 4.03 ($p < .05$) for resultant motivation vs. OPS, resultant motivation vs. OAS, resultant motivation vs. occupational choice (DOT), and resultant motivation vs. occupational choice (NORC), respectively. The three statistically significant chi square values indicate that (1) the probability that Ss who are high in resultant motivation have accurate perception of occupational prestige levels is significantly greater than the probability that Ss who are low in resultant motivation have accurate perception of occupational prestige levels, (2) the probability that Ss who are high in resultant motivation possess high occupational aspirations is significantly greater than the probability that Ss who are low in resultant motivation possess high occupational aspirations, and (3) in making occupational choice, the probability that Ss who are high in resultant motivation choose prestigious occupations is significantly greater than the probability that S's who are low in resultant motivation choose prestigious occupations.

Next, from the point of view of classifying the S in terms of whether he has greater motive to approach success than the motive to avoid failure ($Ms > Maf$) or he has greater motive to avoid failure than the motive to approach success ($Maf > Ms$), the scheme used by Weiner and Rosenbaum (1965) was employed. When $Ms > Maf$ aroused resultant motivation is positive. Conversely, when $Maf > Ms$ aroused resultant motivation is negative. With

this system, the resultant motivation distribution was dichotomized into the positive and negative categories and then paired with variables OPS, OAS occupational choice (DOT), and occupational choice (NORC). This created four more 2 x 2 contingency tables which are presented in Table 5.

Insert Table 5 here

The chi square values for resultant motivation vs. OPS, resultant motivation vs. OAS, resultant motivation vs. occupational choice (DOT), and resultant motivation vs. occupational choice (NORC) are 14.41 ($p < .001$), 5.72 ($p < .05$), 2.49 (NS), and 3.34 (NS), respectively. The two significant chi square values reveal that (1) S's in whom Ms > Maf have significantly more accurate perception of the levels of occupational prestige than Ss in whom Maf > Ms, and (2) Ss in whom Ms > Maf possess significantly higher occupational aspirations than Ss in whom Maf > Ms.

A further hypothesis was suggested when we noted a number of S's answered uncertain to the question about their future occupations. This hypothesis being that the HL group would be more likely to express an occupational choice; whereas, the LH group would be more uncertain as to the future occupations. Table 6 shows the distribution of Ss of the HL, HH, LH, and LL groups in relation to certainty and uncertainty of choice.

Insert Table 6 here

Among 215 S's, 97 were not certain about their future career, and 118 expressed their occupational choice. The patterns of certainty vs. uncertainty among the four groups yielded a Chi-square of 11.249. With 3 degrees of freedom, this result is significant beyond the .05 level. As to the HL and LH groups, the distribution of S's was as follows: 41 S's in the HL group expressed their choice and 18 marked uncertain; whereas, 22 S's in the LH group were certain and 33 were uncertain. The resultant Chi-square was 10.01 which, with 1 degree of freedom, is significant beyond the .01 level. In conclusion, Ss with higher achievement motivation and lower fear of failure were markedly more certain about their occupational goal than those with lower achievement motivation and higher fear of failure.

Discussions

This study investigated adolescent boys' perception of occupational prestige, their occupational aspirations, and occupational choice with achievement motivation (TAT) and fear of failure (TAQ) as determinants. The multiple regressions show that TAT and TAQ are indeed significant multiple predictors of these vocational behaviors with multiple correlation coefficients ranging from .243 (for occupational choice DOT) to .365 (for occupational choice NORC). In terms of contribution to variance, 6%, 9%, 10%, and 13%, respectively of the criterion variance in OPS, OAS, occupational choice (DOT), and occupational choice (NORC) are attributed to variation in TAT and TAQ combined. Future efforts are required in order to establish more powerful regression models for the prediction of vocational behaviors by combining TAT and TAQ with socio-psychological variables such as family background,

socio-economic measures, relation with others, aptitudes, interests, personal goals, and so on as a new set of multiple predictors.

When vocational behaviors are examined in terms of combined motivational conditions (HL, HH, LH, and LL), statistically significant differences with regard to perception of occupational prestige, occupational aspirations, and the prestige levels of the occupations chosen are observed between the HL (high n Achievement, low fear of failure) and LH (low n Achievement, high fear of failure) groups. Mahone (1960) presented evidence that Ss who were low in achievement motivation and high in achievement-related anxiety were classified as unrealistic than Ss who were high in achievement motivation and low in achievement-related anxiety. The empirical findings of the current study serve to extend the Mahoné's findings relating n Achievement and test anxiety to vocational aspiration and realism in the perception of occupations in that the HL and LH groups as clearly identifiable and distinctively different groups can be used as a basis for the description and prediction of adolescents' vocational behaviors in an effective and fruitful fashion. The findings of this study in relation to this scheme are that Ss in the HL group perceive occupational prestige levels more accurately, possess higher occupational aspirations, and choose occupations with higher levels of prestige than Ss in the LH group.

When Ss are examined in terms of high and low resultant motivation, statistically significant differences with regard to perception of occupational prestige, occupational aspiration, and the prestige levels of the occupations chosen are found between the two groups (high resultant motivation vs. low resultant motivation). It is important to note that with

this scheme of grouping for description and prediction of adolescents' vocational behaviors, all Ss are covered whereas for the same purposes with the former scheme only these Ss who are in the HL and LH groups are included and those who are in the HH and LL groups are not covered.

Holland and Nichols (1964), in validating an indecision scale, investigated the personality attributes which contributed to a student's ability to make a vocational decision before he enters college. They reported significant differences with regard to some hobbies, school subjects, and sports between Ss who had "decided" on a vocation and Ss who were "undecided". Our empirical finding that Ss who are certain about their occupational goal have significantly higher achievement motivation and lower fear of failure than Ss who are uncertain about their future occupations ($p < .01$) together with Holland and Nichols' findings seem to lend support to decision theory emphasizing the importance of personality as well as interest variables.

Finally, it is necessary to note the remarkably high correlations found between occupational choice (NORC) and three other criterion variables in this study (see Table 1). As far as high school students are concerned, the prestige levels of occupations chosen are highly associated with the skill levels of the occupations chosen ($r = .785$), perception of occupational prestige ($r = .720$), and occupational aspiration ($r = -.604$). These findings strongly underline the fact that vocational aspiration and the perceived prestige of an occupation indeed play an important role in occupational choice.

Table 1

CORRELATIONS AMONG THE TWO INDEPENDENT VARIABLES AND FOUR CRITERION VARIABLES

Variables	TAT	TAQ	OPS	OAS	DOT	NR
TAT	-					
TAQ	-.116 (N=214)	-				
OPS	-.241** (N=211)	.240** (N=210)	-			
OAS	.224** (N=215)	-.223** (N=214)	-.502*** (N=211)	-		
Occ. Choice DOT	-.211* (N=121)	.145 (N=121)	.381** (N=119)	-.434** (N=119)	-	
Occ. Choice NORC	-.220* (N=121)	.264** (N=121)	.720*** (N=119)	-.604*** (N=119)	.785*** (N=123)	-

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 2a

MULTIPLE CORRELATION COEFFICIENTS WITH
TAT AND TAQ AS THE COMBINED PREDICTORS

Criterion Variable	R	P
OFS	.322	<.01
OAS	.300	<.01
Occ. choice (DOT)	.243	<.01
Occ. choice (NORC)	.365	<.01

Table 2b

COMPARISONS BETWEEN R's AND CORRESPONDING Y's

Criterion	R	Y(TAT)	F	R	Y(TAQ)	F
OPS	.322	-.241	10.5318**	.322	.240	10.6429**
OAS	.300	.224	9.2339**	.300	-.223	9.3376**
DOT	.243	-.211	1.8219	.243	.145	4.7684*
NORC	.365	-.220	11.5478**	.365	.264	8.6486**

* $p < .05$ ** $p < .01$

Table 3

MULTIPLE COMPARISONS AMONG MEANS
(DNMRT) WITH p = .05

Variable	Mean Comparisons*			
OPS	HL	HH	LL	LH
	63.7	79.8	83.8	101.6
	(N=59)	(N=50)	(N=49)	(N=52)
OAS	LH	HH	LL	HL
	37.6	38.0	38.5	46.1
	(N=55)	(N=50)	(N=51)	(N=58)
Occ. choice (DOT)	HL	LH	HH	LL
	1.4	1.6	1.8	1.9
	(N=41)	(N=22)	(N=30)	(N=25)
Occ. choice (NORC)	HL	HH	LL	LH
	31.7	43.5	43.9	46.8
	(N=41)	(N=30)	(N=25)	(N=22)

*Groups underlined by the same line are homogeneous, and any pair of group means not underlined by the same line are significantly different at the .05 level.

Table 4

RESULTANT MOTIVATION (MEDIAN SPLIT) VERSUS OCCUPATIONAL PRESTIGE, OCCUPATIONAL ASPIRATION, OCCUPATIONAL CHOICE (DOT), AND OCCUPATIONAL CHOICE (NORC) - FREQUENCIES AND CHI SQUARE VALUES

	Resultant Motivation		Total	X^2
	High	Low		
OPS				
High	41	66	107	
Low	65	37	102	
Total	106	103	209	13.48
OAS				
High	60	45	105	
Low	47	61	108	
Total	107	106	213	3.96
Occ. Choice DOT				
High	27	32	59	
Low	36	22	58	
Total	63	54	117	3.14
Occ. Choice NORC				
High	25	32	57	
Low	38	23	61	
Total	63	55	118	4.03

Table 5

RESULTANT MOTIVATION (POSITIVE-NEGATIVE) VERSUS OCCUPATIONAL PRESTIGE, OCCUPATIONAL ASPIRATION, OCCUPATIONAL CHOICE (DOT) AND OCCUPATIONAL CHOICE (NORC) - FREQUENCIES AND CHI SQUARE VALUES

	Resultant Motivation			
	Positive	Negative		
OPS				
High	38	69	107	
Low	63	39	102	
Total	101	108	209	14.41
OAS				
High	59	46	105	
Low	43	65	108	
Total	102	111	213	5.72
Occ. Choice DOT				
High	27	32	59	
Low	35	23	58	
Total	62	55	117	2.49
Occ. Choice NORC				
High	25	32	57	
Low	37	24	61	
Total	62	56	118	3.34

Table 6

FREQUENCY OF OCCUPATIONAL CHOICE
IN TERMS OF CERTAINTY AND UNCERTAINTY
OF CHOICE

	Group				Total
	HL	HH	LH	LL	
Certain	41	30	22	25	118
Uncertain	18	20	33	26	97
Total	59	50	55	51	215

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