DOCUMENT RESUME

ED 111 509 PS 008 030

AUTHOR Flynn, Timothy M.
TITLE Personality Factors Related to Intellectual Achievement in Migrant Preschool Children.
PUB DATE Apr 75
NOTE 20p.; Paper presented at the biennial meeting of the Society for Research in Child Development (Denver, Colorado, April 10-13, 1975)

EDRS PRICE MF-$0.76 HC-$1.58 Plus Postage
DESCRIPTORS *Achievement; Caucasians; Compensatory Education Programs; *Migrant Child Education; Migrant Children; Migrant Schools; Motor Development; Negro Youth; *Personality Development; *Preschool Education; Rewards; Risk; School Readiness Tests; Self Concept; Self Control; Sex Differences; *Student Characteristics; Student Teacher Relationship
IDENTIFIERS *Delay Of Gratification

ABSTRACT

To determine the personality characteristics that may be related to school readiness, particularly with reference to migrant preschool children, the following characteristics were examined: (1) delay of gratification, (2) relationship with achievement model, (3) dependency, (4) motor inhibition, (5) self control, (6) self concept, and (7) risk taking. The 195 children (187 black, 8 white) who participated in the study ranged in age from approximately 3 1/2 to 4 1/2 years, and were randomly selected from compensatory education programs for preschool children of migrant workers in Florida. In order to insure that the characteristics examined were of an affective nature, a cognitive ability measure was used as a covariate to remove achievement variance due to the child's cognitive ability. Tests used to determine the characteristics in question are explained in detail. Results indicated: (1) self concept accounted for a significant percentage of achievement variance for both boys and girls; (2) self concept, delay of gratification, and motor inhibition accounted for a significant percentage of variance for boys but not for girls; and (3) risk taking was related to school readiness for girls but not boys. It is suggested that future program planning take these sex differences into account: (Author/ED)

PERSONALITY FACTORS RELATED TO INTELLECTUAL ACHIEVEMENT IN MIGRANT PRESCHOOL CHILDREN

Timothy M. Flynn*
Child and Family Department
Southern Illinois University

*Research conducted at Florida State University.

ABSTRACT

PERSONALITY FACTORS RELATED TO INTELLECTUAL ACHIEVEMENT IN MIGRANT PRESCHOOL CHILDREN

To determine the personality characteristics that are related to school readiness the following seven characteristics were examined: 1) delay of gratification, 2) relationship with achievement model, 3) dependency, 4) motor inhibition, 5) self-control, 6) self-concept, and 7) risk taking.

A cognitive ability measure was used as a covariate to remove the purely intellectual factor from the measure of school readiness to insure that the characteristics being examined were of an affective nature. Results of the regression analysis indicated that self-concept accounted for a significant ($p<.05$) percentage of achievement variance for both the boys and the girls. Self control, delay of gratification, and motor inhibition accounted for a significant percentage of variance ($p<.05$) for the boys but not for the girls. However, risk taking was related ($p<.05$) to school readiness for the girls but not for the boys.

PERSONALITY FACTORS RELATED TO INTELLECTUAL ACHIEVEMENT IN MIGRANT PRESCHOOL CHILDREN

The rapid expansion of group care for young children, especially those from disadvantaged homes, has made the continued development, refinement, and evaluation of curricula for the preschool child a necessity. The problems facing disadvantaged children force preschool programs to deal (implicitly, if not explicitly) with both the affective and cognitive domain. However, the focus of most compensatory programs have been the cognitive frame of reference (Bereiter and Engelman 1966; Gahagan and Gahagan 1971; Karnes, Teska, Hodgins 1970; Weikart and Weigerink 1968).

While cognitive deficiencies do seriously hamper disadvantaged children, it is likely that we have underestimated the role personality variables play in the child's readiness for school. The personality variables to be investigated in the present study do not necessarily relate to general patterns of emotional development in the young child (e.g. sibling rivalry, need for security, etc.). Rather, the emphasis is on personality variables associated with the disadvantaged child's difficulty with intellectual achievement.

The child's school readiness, measured by a preschool achievement scale, was analyzed to determine the role specific personality traits play in its formation. The procedure used was to remove the achievement variance due to the child's

cognitive ability and relate the remaining variance to specific personality variables. This approach contrasts with the majority of previously conducted research which has failed to control for cognitive development (Crandall 1962; Crandall 1964).

To determine the personality variables that discriminate between migrant preschool children on different levels of preschool achievement the following seven characteristics were selected for examination: 1) delay of gratification, 2) relationship with achievement model, 3) dependency, 4) motor inhibition, 5) self control, 6) self concept, and 7) risk taking. The dependent measure of preschool achievement was the 85 item Cooperative Preschool Inventory (CPI) designed for the individual assessment of school readiness (Caldwell 1967).

Selection of the seven personality variables examined in the present study was based on the relationship between these traits and achievement as reported in the following studies. The characteristics of children who display more achievement behavior than their peers were studied through a longitudinal investigation (Sontag, Baker and Nelson 1958) based on standardized tests and ratings of children's behavior in nursery and elementary school as well as in the home. It was found that girls whose IQ's increased during the preschool years were able to delay gratification of their desires until some distant time. Mischel (1961) also found a significant relationship between preference for immediate smaller, or delayed

larger reinforcement in choice situations and "n" Achievement (responses to pictures scored for achievement motive). His sample consisted of 112 Trinidadian children between the ages of eleven and fourteen years. Haggard (1957) found that high achievers were better able to control their impulses than equally gifted children who were not achieving at such a high level. The high achievers were also more responsive to socialization pressures and were more concerned with meeting adult expectation; however, they were less dependent upon their teacher and showed more initiative. These findings tend to support the contention that the following four factors examined in the present study are related to achievement: 1) relationship with achievement model, 2) dependency, 3) self control and indirectly, 4) motor inhibition.

Support for the relationship between self-concept and achievement was provided by Crandall, Katkovsky and Preston (1962) who assessed the amount of time elementary school age children chose to spend in intellectual activities during free play time while at a summer camp. Boys who predicted their own success in intellectual activities did better on achievement measures than less confident boys, but no relationship existed for girls. McClelland (1958) examined the relationship between "n" Achievement (responses to pictures scored for achievement motive) to risk taking in 26 children in kindergarten and 32 children in third grade. In both groups of subjects, individuals with "n" Achievement tended to take

moderate risks, while students with low "n" Achievement preferred either very safe or speculative enterprises.

While the research presented suggested a possible relationship between achievement and the seven personality variables, it did not rule out the possibility that their relationship was with general intelligence rather than the personality components of achievement. Therefore, removing the effects of the child's cognitive development on achievement may eliminate the previous found relationships. Another weakness of the presented research is that the characteristics were studied independently; therefore, no evidence that the characteristics are independent constructs is provided.

METHOD

The children in the present study were between 3 years 9 months and 4 years 9 months. They attended a compensatory education program for children of migrant workers which operated from sixty-one classroom trailers in central and south Florida. The included subjects were chosen from randomly selected trailers in two south Florida counties. The total research population consisted of 195 children: 187 Negro, with the remaining 8, white.

Measures

Four factors, measured by the Pre-kindergarten Scale (PKS), were: 1) cognition, 2) self-control, 3) relationship with achievement model, and 4) dependency. The PKS is a

multiple choice behavioral observation scale designed to take advantage of the daily observations of the teachers and teacher aides. To rate a child, the teacher or aide selected the behavior that best described the child in situation provided in the stem. The following item from the scale illustrates the format:

When receiving needed help from his teacher, this child:

1. actively responds to the help
2. bashfully responds to the help
3. passively receives the help
4. withdraws from the offered help
5. have not observed.

The factors derived from the PKS were obtained through a orthogonal factor analysis (Flynn 1971). Factor coefficients were obtained from the teacher's and two teacher aides' ratings of 144 preschool migrant children. These coefficients were then applied to a different sample of teacher's and teacher aides' ratings of 153 children to obtain four separate scores for each rating. Campbell and Fisk's (1959) convergent-discriminant validation procedure was used to compare the correlations between the four factor scores of three different observations of the same child. Three multitrait-multirater matrices were constructed. After transformation to Fishers Z, the average validity coefficient obtained from three matrices were: .42 for cognition, .47 for self-control, .50 for relationship with achievement model, and .30 for dependency. The

four traits average inter-correlations with unlike traits were .10 for cognitive skills, .02 for self-control, .16 for relationship with achievement model, and .11 for dependency. Comparing the overall average validity coefficient of .43 with the average coefficient of unlike traits of .11 provides support for the validity and independence of the four traits derived from the PKS.

Four female psychrometrists, three of whom were black, administered the individual tests that were used to obtain the measures of cognition, self concept, delay of gratification and risk taking. These measures are experimental in nature and under development by the Educational Testing Service (ETS) of Princeton, New Jersey, and were used with their permission (Educational Testing Service 1968).

To form a measure of cognition the child's standard score on ETS Matched Pictures Comprehension Task, ETS Story Sequence Task, and the standard score on the cognition measure from the Pre-kindergarten Scale were combined.

Cognition. ETS Matched Pictures Comprehension Task measures listening, recognition of word and sentence properties. This measure was developed to meet the need for a series of syntactically structured tasks which would require minimal responses from the child (i.e., pointing). The tasks consist of a "Matched Picture" presentation of 20 cards containing pairs of stiumlus pictures. Both pictures contain similar elements, but (they) depict different relationships.

ETS Story Sequence Test, Part II measures speaking, retelling, comprehension, and creative speech. The test materials consist of two sets (3 and 4 cards each) of cartoon style sequences using animals as characters. The examiner tells the subject to listen carefully to the story because the subject is to repeat the same story. The subject's version of the story is recorded on tape for later scoring and interpretation.

Matching Familiar Figures measures the child's visual-perceptual skills. The subject is shown a set of four pictures, then a single standard. His task is to identify the one comparison figure among the four that is identical to the standard.

Delay of Gratification. Mischel Technique (1961) measures the ability to delay gratification. The subject is shown two rewards (candy) and is told that he can have the smaller one now or the larger one at some later period (specified by the Examiner). He is asked whether he wishes the smaller or the larger of the two items.

Risk Taking. The first task in the risk taking measure consists of showing the child two bags; the child looks into the bag, and sees a toy (car) in it. He is told that the other bag may be empty or may have five toys in it. The child is then asked if he would rather have the car, or the other bag. If the child selects the bag the game is over. If he selects the car, he is shown the contents of the bag, and asked to choose another bag. The same choice is again

presented to the child. If he selects the bag when first asked, he receives two points, however, if he selects the bag the second time, he receives one point.

Self Concept. The Brown IDS Self Concept Reference Test measures the child's perception of self. The procedure involves taking a photograph of each subject to use in asking the subject 16 questions about his picture. Each positive response receives a score of one; each negative response receives a score of zero. The questions ask whether the child in the picture is "happy," "clean," "ugly," "talks a lot," "good," "scared," and so forth.

Motor Inhibition. The Motor inhibition measure impulsivity. The child performs two motor acts, drawing a line between two points and walking a distance of ten feet. He practices each act and then is timed as he performs it as slowly as he can. The Motor Inhibition Ability Test was introduced by Maccoby, Dowley, Hagen, and Degerman (1965).

Dependent Variable. The Cooperative Preschool Inventory (CPI) measures general knowledge, listening for word meaning and comprehension, writing (form copying), speaking, and quantitative skills. The CPI was designed as an assessment procedure for use in individual testing of children age three to six (Caldwell 1967). The CPI consists of 85 items which were selected on the basis of a principal components factor analysis. Williams and Stewart (1968) reported a reliability of .93 (coefficient Alpha) for a sample of 445 children attending a summer Head Start Program. The author obtained a coefficient

Alpha reliability of .88 for the CPI administered to 195 migrant children.

RESULTS

Multiple linear regression analysis (Bottenberg and Ward 1963) was used to examine the relationship between the seven personality variables and achievement with cognition acting as a covariate. The procedure used for the examination of these variables acting together in predicting achievement consisted of testing the full model against a model which was minus only one variable. Thus, instead of testing each variable in a full model, which was changing as variables were found to be insignificant, the same full model was used for all the variables. Each sex was analyzed separately to determine whether a linear or quardratic fit best described the data. However, in all cases, the linear fit best described the data. All possible interactions were examined with no significant ($p>.05$) interactions being found among the seven personality variables in predicting achievement.

In the presentation of the results in Table 1 the additive nature of the variables to cognition in predicting achievement are examined. It is evident that only self concept and risk

---

Insert Table 1

---

taking account for significant percentage of the achievement variance for girls when acting in conjunction with cognition. This was found to be the case when examined independently and in conjunction with the other six factors. When only the significant traits of self concept and risk taking are used to predict achievement they add 4 and 5 percent, respectively, to cognition in predicting achievement.

The boys' results were at variance with that of the girls' results as the factors of motor inhibition, self control, and delay of gratification accounted for a significant percentage of the achievement variance for the boys. Self concept played a significant role for both boys and girls, but even this similarity emphasized the difference between sexes. The percentage of variance accounted for by self concept for the boys was over twice as large as that accounted for by the girls (11 and 4 percent, respectively).

In the regression analysis with the six traits acting together to predict achievement the percentage of variance accounted for was reduced. This was due to the common variance shared by the six traits. Even with this reduction in effect the traits found significant in the previous analysis were again found to be significantly ($p<.05$) related to school readiness with the effects of cognition removed. This analysis indicated that the significant traits were measuring independent constructs related to school readiness.

Insert Table 2

Table 2 presents the intercorrelations for both boys and girls on all variables included in the study. Dependency was significantly ($p<.05$) related to cognition but had a near zero ($r = .01$) correlation with achievement. However, for the boys dependency relationship with achievement and cognition were both significant ($p<.01$). This implies that the dependent girl has a tendency to perform poorly on cognitive tasks, but not on her achievement measure. In contrast, boys who are dependent tend to perform poorly on both the cognitive and the achievement measures.

Risk taking, which has a nearly identical relationship with achievement for both boys and girls (.22 and .18 respectively), was significantly ($p<.05$) related to achievement for the girls but not for the boys, when cognition was held constant. This is explained by the significant ($p<.01$) relationship between cognition and risk taking ($r = .29$) for the boys but negative ($r = -.12$) relationship for the girls. When risk taking was combined with cognition in predicting achievement, the significant ($p<.05$) relationship disappeared for the boys, but the previous negative relationship with achivevement for the girls became a significant positive ($p<.05$) relationship.

DISCUSSION

One factor that may partially explain the stronger relationship between self concept and achievement for the boys than for girls is that boys seem to evaluate their

performances more realistically than girls (Crandall 1962). Another difference between the sexes is the finding that risk taking predicted achievement (cognition variance removed) for girls but not for boys. Delay of gratification, however, predicted achievement (cognition variance removed) for boys but not for girls. This finding is consistent with Murphy's (1962) findings that for boys a measure of "coping" is related to "the ability to balance gratification and frustration." Sigel (1964) reported a study of four to five year old children in which cautiousness was negatively related to an achievement measure for girls, but positively related for boys.

The relationship between motor inhibition and self control as components of achievement (cognition variance removed) for boys but not for girls, stresses the importance of impulse control for boys' achievement. A longitudinal study by Kagan and Moss (1962) found that measures of hyperkinesis (high levels of undirected activity during childhood) correlates negatively with adult intellectual interests for men but slightly positive for women.

While the sex differences in the traits related to achievement for the migrant preschool children in the present study has been confirmed using non-deprived preschool populations (Sears 1962), few programs for the preschool child have made any systematic efforts to provide for these personality differences between boys and girls. The findings of the present study, for example, suggests that in planning an educational

program for the migrant child, specific sex differences should be incorporated in the program.

Preschool programs for migrant girls, according to the present findings, should encourage active interaction with the environment, while preschool programs for migrant boys should encourage the development of impulse control. Emphasis for both sexes would be placed on providing experiences that would develop a healthy self-concept.

Considering the negative influences of the cultural milieu, and the socio-economic class to which the migrant child belongs, it will be necessary to use all of the information at our disposal to significantly aid his academic performance. Pre-school and kindergarten programs for these children cannot afford to ignore the sex differences in the personality variables which may affect future academic achievement.

TABLE 1

Relationship Between the Seven Affective Traits and Achievement with Cognition Acting as Covariate

Trait		Percentage of Variance Acting Alone	Percentage of Variance Acting Together with the Other Six Traits
Motor Inhibition			
	Boys (N = 95)	7.25**	2.24*
	Girls (N = 100)	.23	.01
Self-control			
	Boys	5.53**	3.25*
	Girls	1.21	.29
Relationship with Achievement Model			
	Boys	.00	.03
	Girls	.40	.01
Dependency			
	Boys	.80	.00
	Girls	1.35	1.58
Self Concept			
	Boys	11.03**	5.67*
	Girls	4.71*	3.10*
Delay of Gratification			
	Boys	3.52*	2.26*
	Girls	1.77	.39
Risk Taking			
	Boys	.49	.07
	Girls	6.16*	4.91*

*p<.05
**p<.01

TABLE 2

Correlation Matrix For Boys and Girls

		C	M	SC	RAM	D	S	G	R	CPI
Cognition	Boys	1.00								
	Girls	1.00								
Motor Inhibition (M)	Boys	.27*	1.00							
	Girls	.18	1.00							
Self Control (SC)	Boys	.04	.18	1.00						
	Girls	.09	.18	1.00						
Relationship with Achievement Model (RAM)	Boys	.25*	.08	.11	1.00					
	Girls	.13	.09	.06	1.00					
Dependency (D)	Boys	.33**	.18	.26	.20	1.00				
	Girls	.22*	.13	.08	.08	1.00				
Self Concept (S)	Boys	.25*	.26	.19	.06	.19	1.00			
	Girls	.27**	.21*	.09	.12	.05				
Delay of Gratification (G)	Boys	-.02	-.18	-.16	.01	.02	.12	1.00		
	Girls	-.16	.27**	.15	.06	.00	.11	1.00		
Risk Taking (R)	Boys	.29**	.19	.22	.09	.08	.16	.06	1.00	
	Girls	-.12	-.15	.16	-.04	.08	.02	.10	1.00	
Cooperative Preschool Inventory	Boys	.53**	.40**	.28**	.14	.26**	.45**	.18	.22*	1.00
	Girls	.50**	.13	1.5	.07	.01	.33**	.03	.18	1.00

*p<.05
**p<.01

REFERENCES

Bereiter, C., & Engelman, S. Teaching Disadvantaged Children in the Preschool. Englewood Cliffs, New Jersey: Prentice-Hall, 1966.

Bottenberg, R. A., & Ward, J. E. Applied multiple linear regression. 6570th Personnel Research Laboratory Aerospace Medical Division, Air Force Systems Command, Lackland Air Force Base, Texas, 1963.

Caldwell, B. M. The preschool inventory technical report. Princeton, New Jersey: Educational Testing Service, 1967.

Campbell, D., & Fiske, D. Convergent and Discriminant validation by the multitrait-multimethod matrix. Psychological Bulletin, 1959, 56, 81-105.

Crandall, V. C. Achievement behavior in young children. Young Children, 1964, 20, 77-90.

Crandall, V., Katkovsky, W., & Preston, Anne. Motivational and ability determinents of young children's intellectual achievement development, Child Development, 1962, 33, 643-61.

Educational Testing Service. Disadvantaged children and their first school experience ETS-OEO Longitudinal Study: Theoretical Considerations and Measurement Strategies. Report under OEO contract number 4206 and OEO Grant Number C G-8256. Princeton, New Jersey: Educational Testing Service, 1968.

Flynn, T. M. Convergent discriminant validation of behavioral ratings. Research in Education, 1971, 7, 118.

Gahagan, D. M., & Gahagan, G. A. Talk reform: Exploration in language in the primary school. Primary socialization, language and education. Vol. III Sociological Research Unit Monograph. Series directed by B. Bernstein. London: Routledge and Kegan, Paul, 1971.

Karnes, M. B., Teska, J. A., & Hodgins, A. S. 1970. The effects of four programs of classroom intervention on the intellectual and language development of 4 year old disadvantaged children. American Journal of Orthopsychiatry, 1, 58-76.

Maccoby, E. E., Dowley, Em. M., Hagen, V. W., & Degerman, R. Activity level and intellectual functioning in normal preschool children. Child Development, 1965, 36, 761-770.

McClelland, D. "Risk taking in children with high and low need for achievement." In J. Atkinson (ed.), Motives in fantasy, action, and society. Princeton: D. Van Nostrand Co., Inc., 1958. pp. 306-321.

Mischel, W. Father absence and delay of gratification, cross-cultural comparison, Journal of Abnormal and Social Psychology, 1961, 63, 116-124.

Murphy, Lois B. The widening world of childhood. New York: Basic Books, 1962.

Sears, P. S. Correlates of need achievement and need affiliation and classroom management, self-concept, achievement and creativity. Unpublished manuscript, Laboratory of Human Development, Stanford University, 1962.

Sigel, I. E. The attainment of concepts. In M. L. Hoffman and L. W. Hoffman (eds.), Review of child development research. Vol. 1, New York: Russell Sage Foundation, 1964. pp. 204-248.

Sontag, L. W., Baker, C. T., & Nelson, V. Mental growth and personality development: a longitudinal study, Child Development Monograph, 1958, No. 2.

Weikart, D. P.& Weigerink, R. Initial results of comparative preschool curriculum project. Paper presented at annual meeting of the American Psychological Association, San Francisco, September, 1968.

Williams, R. H., & Steward, E. E. Some characteristics of children in the Head start Program. Section One of Final Report, Project Head Start, Princeton, N. J.: Educational Testing Service, 1966.