DOCUMENT RESUME

ED 058 933 PS 005 144

AUTHOR Nowicki, Stephen, Jr.; Strickland, Bonnie R.
TITLE A Locus of Control Scale for Children.
PUB DATE Sep 71
NOTE 18p.; Paper presented at the 79th Annual Convention of the American Psychological Association, Washington, D.C., September 3-7, 1971

EDRS PRICE MF-$0.65 HC-$3.29
DESCRIPTORS Adults; *Behavior Patterns; Elementary School Students; *Measurement Instruments; Reactive Behavior; *Reinforcement; Secondary School Students; *Self Concept Tests; Sex Differences; Test Reliability; *Test Results; Test Validity
IDENTIFIERS *Nowicki Strickland Locus of Control Scale

ABSTRACT

A study to produce a reliable, methodological precise measure of generalized locus of control of reinforcement, which can be group administered to a wide range of children, is reported. The measure produced, the Nowicki-Strickland Locus of Control Scale, is a paper and pencil instrument of 40 questions which are marked either yes or no. The scale was administered to 1017 mostly Caucasian elementary and high school students, grades 3 through 12, with all socioeconomic levels except the very highest represented. All mean intelligence scores were in the average range. Results of the test administration include: (1) the student's responses became more internal with age, and substantial individual differences occurred at the third-grade level; (2) all item-total relationships were moderate but consistent for all ages; (3) locus of control scores were not significantly related to social desirability; (4) it was tentaively concluded that internality is related significantly to higher occupational level, especially for males; and (5) there was a clear relationship between locus of control and achievement scores; all correlations were negative, with most of the significant correlations present in the male group. Two revised scales of 20 items and 21 items for primary and secondary groups, respectively, were constructed; the scale was also adopted for use with college and adult subjects. Eight tables present the study data, and samples of the 20 and 21 item scales are given. (DB)

Paper presented at American Psychological Association meetings, Washington, D. C., 1971

A LOCUS OF CONTROL SCALE FOR CHILDREN

Stephen Nowicki, Jr. and Bonnie R. Strickland

Emory University

Reinforcement has long been recognized as a major determinant of behavior; however, as Rotter (1966) notes, the effect of reinforcement is not a simple stamping in process but "depends on whether or not the person perceives a causal relationship between his own behavior and the reward". (p. 1) This perception may vary in degree from individual to individual and even within the same individual over time and situations. The development of a belief of behavior-reinforcement contingencies is likely a particularly important influence as a growing child learns appropriate social and personal behavior. That is, how a child perceives the world he lives in, ranging perhaps from chaotic and erratic to predictable and orderly, may play a major role in determining his behavior and his expectancy of receiving reinforcement for that behavior. While expectancy concepts as explanations of behavior are not new, being grounded in psychological theory dating back to Tolman's sign-significant (1934) and Lewin's subjective probability of events (1951), the concepts of expectancy and reinforcement are brought together for the first time in a systematic and definitive fashion in Rotter's social learning theory (1954). It is within this general theoretical framework that the dimension of locus of control of reinforcement is conceptualized. Rotter described this variable as a generalized expectancy of internal versus external control of reinforcement. He remarks that:

> When a reinforcement is perceived by the subject as following some action of his own but not being entirely contingent upon his action, then, in our culture, it is typically perceived as the result of luck, chance, fate, as under the control of powerful others, or as unpredictable because of the great complexity of the forces surrounding him. When the event is interpreted in this way by an individual, we have labeled this a belief in external control. If the person perceives that the event is contingent upon his own behavior or his own relatively permanent characteristics, we have termed this a belief in internal control. (pg. 1)

Considerable research on this dimension has been accomplished with adults. Researchers have found externality to be associated with defensive and maladaptive level of aspiration behavior (Phares, 1957; Simmons, 1959), schizophrenia (Cromwell, Rosenthal, Shakow, and Kahn, 1961), lower social class membership (Battle and Rotter, 1963), race (Lefcourt & Ladwig, 1965), less involvement in civil rights activities (Gore and Rotter, 1963; Strickland, 1965) and underachievement (Rotter, 1966). Subjects characterized as internals recall more information about their environment which is relevant and potentially useful (Seeman, 1963; Seeman & Evans, 1962) and are particularly resistant to subtle attempts to influence them (Gore, 1962; Getter, 1966; Strickland, 1970). The major adult measure of locus of control is a modification of the early instruments of Phares (1955) and James (1957) was constructed by Rotter and his associates (Liverant, Rotter, Crowne, and Seeman, 1962). A complete description of this scale with reliability and validation data is presented by Rotter, 1966 . Although the Rotter scale has been criticized in regard to its appropriateness for Negroes (Gurin et al., 1969), nonetheless, this scale with a few other

measures, has been used in well over a hundred studies over the last 15 years.

Considering this extensive body of research with adults, it seems appropriate to extend an investigation of the locus of control variable to children. There is ample reason to believe that this variable is of significant influence on children's behavior. For instance Coleman et al. (1966), in a study of almost a half million youngsters across the United States, found that a belief in destiny was the major determinant in school achievement. He concludes that this pupil attitude factor has a stronger relationship to achievement than all other school factors together.

Of course research in this area is dependent on a reliable and valid measure and there have been a number of attempts to measure the locus of control of reinforcement dimension in children. Bialer and Cromwell (1961) developed a paper and pencil measure consisting of 23 items answered yes or no, while Battle and Rotter (1963) constructed a projective device called the Children's Picture Test of Internal-External Control. Research with these measures suggest that locus of control is related to age, social class and race with internal scores associated with older age, higher social class and white subjects as opposed to lower class black subjects. From these suggestive findings with measures of a generalized locus of control measure, Crandall et al. (1965) attempted to develop a more specific measure aimed at assessing children's beliefs in reinforcement in intellectual-academic achievement situations. This measure, the Intellectual Achievement Responsibility Questionnaire, is a forced choice scale composed of 34 items. Two scores are derived from this scale; one a positive score based on those positive events for which the subject assumes credit and a negative score for negative events for which he assumes blame. Reliabilities for their samples are somewhat low but satisfactory. They conclude that internal-external control of academic responsibility is established by the third grade with upper grade females more internal than males. Scores are moderately related to intelligence, ordinal position, and size of family but inconsistently related to social class. The scale did predict younger girls' and older boys' achievement scores.

In all, however, each of the measures of a child's locus of control of reinforcement fall short in one way or another. Bialer and Cromwell's scale suffers from reliability and format shortcomings. For example, the scale had a reported split-half reliability of r=.49 in a study by Schaffer, Strickland and Uhl (1969). Moreover, the basic format of the Bialer-Cromwell scale has over half of the items consecutively keyed in one direction; an open invitation for response style to significantly affect scores. Battle and Rotter's measure is difficult to administer to large groups and there is incomplete reliability information available. Crandall's scale is specifically constructed for the academic rather than the general situation, and its forced choice format may be difficult for younger and duller subjects.

Consequently, there is a clear need for a reliable instrument for researchers to use to study the effects of a generalized locus of control orientation on a child's behavior. A methodologically sound measure would allow researchers to describe better the nomothetic network of relationships surrounding this dimension. Therefore the major purpose of the present study is to produce a reliable, methodological precise measure of generalized locus of control of reinforcement which can be group administered to a wide age range of children. Evidence of construct validity as

measured by relationships with achievement, intelligence, socio-economic class, and parental education level is also presented.

HYPOTHESIS

The following relationships are hypothesized as necessary for a measure to be considered an appropriate assessment of locus of control.

1. Scores will become more internal with increasing age.
2. Scores will be related to achievement with internals achieving more than externals.
3. Scores will not be significantly related to measure of social desirability or intelligence.

Method

The Nowicki-Strickland Locus of Control scale is a paper and pencil measure consisting of 40 questions which are answered either yes or no by placing a mark next to the question. This form of the measure derived from work which began with a large number of items (n=102) constructed on the basis of Rotter's definition of the internal-external control of reinforcement dimension. The items described reinforcement situations across interpersonal and motivational areas such as affiliation, achievement, and dependency. School teachers were consulted in the construction of items. The goal was to make the items readable at the fifth grade level yet appropriate for older students. These items along with Rotter's description of the locus of control dimension were then given to a group of clinical psychology staff members (n=9) and graduate students (n=5) who were asked to answer the items in an external direction. Items were dropped on which there was not complete agreement among the judges. This left 59 items which made up the preliminary form of the test. The 59 item form of the test was then given to a sample of children (n=152) ranging from the third through the ninth grades. Means and standard deviations for this testing are presented in Table 1; the higher the score the more external the orientation. These results indicate a relationship between locus of control and age, with children becoming more internal as they became older. Controlling for IQ, internals perform significantly better than externals on achievement test scores ($t=3.78$, $df=48$). Test-retest reliabilities for a six week period are .67 for the eight to 11 year old group (N=98) and .75 for those in the 12 to 15 year old group. (N=54)

These results were encouraging. Item analysis were computed to make a somewhat more homogenous scale and to examine the discriminative performance of the items. The results of this analysis, as well as comments from teachers and pupils in the sample led to the present form of the scale consisting of 40 items.

ADMINISTRATION

The next stage of the present investigation was to administer the 40 item scale to a large number of children ranging from the third through the 12th grade to obtain reliability estimates, demographic measures and construct validity information. The sample

consists of 1017 mostly Caucasian elementary and high school students, in four different communities. All schools are in a county bordering a large southern metropolitan city, but none are from a large metropolitan school system.

Socioeconomic data were obtained from the school records and Hollingshead Index of Social Position (1957) rankings indicated that although the lower level occupations are somewhat over represented, all levels, except the very highest one, are well represented.

Intelligence test scores for males and females are shown in Table 2. It can be seen that there are not practical differences among the scores and that all the mean scores fall in the average range.

Preliminary research showed that first and second graders had some difficulty with the preliminary instrument so that it was decided to concentrate on the third through 12th grades in this investigation. This is not to say the test is not appropriate for first and second graders but rather the present study emphasizes the performance of somewhat older students. The subjects were told that the examiner was gathering information concerning attitudes and opinions of different aged students to see how they differed depending on the age of the students. The students were assured their responses would be kept confidential. The testing took place midway through the spring quarter at the schools. The examiner read each item aloud twice, asking the subjects to check the yes or no place on the test sheet. This oral presentation was chosen to make items more understandable and easier to follow.

Results and Discussion

Table 3 presents the means and standard deviations of the Nowicki-Strickland scale scores for males and females at each grade level. The table shows, as predicted, that the student's responses became more internal with age, and that substantial individual differences in this measure were present at the third grade level. Older children show more variance in their responses compared to younger children, not an unexpected occurrence.

The Nowicki-Strickland scale items are presented in Table 4. Biserial item correlations are presented for males and females at the third, seventh and 11th grades. It is evident from this table that the item-total relationships are moderate but consistent for all ages.

Estimates of internal consistency via the split-half method, corrected by the Spearman-Brown are: r=.63 (grades 3, 4, 5); r=.68 (grades 6, 7, 8); r=.74 (grades 9, 10, 11); r=.81 (grade 12). These reliabilities are satisfactory, in light of the fact that these items are not arranged according to difficulty. Since the test is additive and items are not comparable, the split-half reliabilities tend to underestimate the true internal consistency of the scale.

Test-retest reliabilities sampled at three grade levels, six weeks apart, are .63 for the third grade, .66 for the seventh grade and .71 for the 10th grade.

Correlations with an abbreviated form of the Children's Social Desirability Scale (Crandall, 1965) are presented in Table 5. Locus of control scores are not significantly related to social desirability, a predicted finding.

The relationships between locus of control and socioeconomic class, parental educational level and achievement are presented in Tables 6, 7, and 8.

In regards to socioeconomic level (Table 6) all correlations are negative with six of the 16 correlations reaching the .10 level of significance. Most of the significant correlations are present in the male group. It is tentatively concluded that internality is related significantly to higher occupational level, especially for males.

The correlations for parental level of education are not as clear (Table 7). Although all correlations are negative, only two of the 12 correlations are significant and both of these are in the male group. The lack of significance may be the result of using the highest level of education for the analysis, regardless of whether it was the mother's or the father's. This procedure may add a source of error for locus of control scores may be related to father's but not mother's educational level.

On the other hand, there is a clear relationship between locus of control and achievement scores (Table 8). All the correlations are negative, again with most of the significant correlations present in the male groups. Female achievement does not seem to be predictable from scores on the Nowicki-Strickland scale. Only fifth and seventh grade females show a trend toward a significant relationship with achievement scores.

It is concluded from the data presented that the Nowicki-Strickland Locus of Control of Reinforcement scale has promise as a methodologically sound, reliable and valid measure of a generalized expectancy of reinforcement. Since the construction of the scale, a number of studies across a diverse range of subjects have been conducted. These studies cover a wide number of variables such as delay of gratification, involvement in activities, popularity, perceived popularity, interpersonal distance, race, learning methods, and adjustment and the findings strengthen the construct validity of the Nowicki-Strickland scale.

AN ADDENDUM

On the basis of the item-total correlations and item variance estimates for each item on the Nowicki-Strickland scale, those items working the best were identified. The analyses computed for each grade were then combined into primary and secondary groups. The primary group consists of subjects from the third through the sixth grades while the secondary group consists of subjects from the seventh through the twelfth grades. The results of these analyses were used to construct shorter, yet reliable versions of the 40 item scale. The two revised scales consist of 20 and 21 items respectively using the items which discriminate the best for the two age groups. These new revisions should be used with caution until more reliability and validity information can be gathered on them. However, there is every reason to believe from the item analysis (on over 1000 students) that these revisions should be a usable, reliable, and quick measure of a generalized locus of control of reinforcement for different aged children.

In addition, the Nowicki-Strickland scale for children has been revised and adopted for use with college and adult subjects. This was done to allow for direct comparison between the responses of adults and children. The low level of reading skill required and the lack of politically tinged items make it appropriate for use in a wide number of populations. The scale has already shown usefulness in some pilot studies where it has been used to compare children's responses with those of their parents and in relating grade point averages to internal scores. It too must be used with some caution until more reliability and validity data can be gathered.

Battle, Esther S. and Rotter, J. B. Children's feelings of personal control as related to social class ethnic group. Journal of Personality, 1963, 3 , 482-490.

Bialer, I. Conceptualization of success and failure in mentally retarded and normal children. Journal of Personality, 1961, 29, 303-320.

Cellura, A. R. Internality as a determinant of academic achievement in low SES adolescents. Unpublished manuscript, University of Rochester, 1963.

Coleman, J. S., Campbell, E. Q., Hobson, C. J., McPartland, J., Mood, A. M., Weinfeld, F. D. & York, R. T. Equality of educational opportunity. (Superintendent of Documents, Catalog No. FS5.238:38001 Washington, D.C.: Government Printing Office, 1966

Crandall, V. C., Crandall, V. J. and Katkovsky, W. A children's social desirability questionnaire. Journal of Consulting Psychology, 1965, 29, 27-36.

Crandall, V. J., Katkovsky, W. and Crandall, V. C. Children's belief in their own control of reinforcement in intellectual-academic situations. Child Development, 1965, 36, 91-109.

Cromwell, R., Rosenthal, D., Shakow, D. and Kahn, T. Reaction time, locus of control, choice behavior, and descriptions of parental behavior in schizophrenic and normal subjects. Journal of Personality, 1961, 29, 363-380.

Getter, H. A personality determinant of verbal conditioning. Journal of Personality, 1966, 34, 397-405.

Gore, P. M. Individual differences in the prediction of subject compliance to experimental bias. Unpublished doctoral dissertation, Ohio State University, 1962.

Gore, P. M. and Rotter, J. B. A personality correlate of social action. Journal of Personality, 1963, 31, 58-64.

Gurin, P., Gurin, G., Lao, R., & Beattie, M. Internal-external control in the motivational dynamics of Negro youth. Journal of Social Issues, 1969, 25, 29-53.

Hollingshead, A. The two-factor index of social position. New Haven: Author 1957.

James, W. H. Internal versus external control of reinforcement as a basic variable in learning theory. Unpublished doctoral dissertation, Ohio State University, 1957.

Lefcourt, H. M., & Ladwig, G. W. The American Negro: A problem in expectancies. Journal of Personality and Social Psychology, 1965, 1, 377-380.

Lewin, K. The nature of field theory. In M. H. Marx (Ed.), Psychological theory. New York: Macmillan, 1951.

Rotter, J. B. Social learning and clinical psychology. New York: Prentice-Hall, 1954.

Rotter, J. B. Generalized expectancies for internal versus external control of reinforcement. Psychological Monographs, 1966, 80, (1, Whole No. 609).

Schaffer, S., Strickland, B., & Uhl, N. The relationship of individual difference measures to socio-economic level and to discrimination learning. Paper read at Southeastern Psychological Association meeting, 1969.

Seeman, M. Alienation and social learning in a reformatory. American Journal of Sociology, 1963, 69, 270-284

Seeman, M. & Evans, J. W. Alienation and learning in a hospital setting. American Sociological Review, 1962, 27, 772-783.

Simmons, W. Personality correlates of the James-Phares scale. Unpublished master's thesis, Ohio State University, 1959.

Strickland, B. R. The prediction of social action from a dimension of internal-external control. Journal of Social Psychology, 1965, 66, 353-358.

Strickland, B., & Crowne, D. P. Conformity under conditions of simulated pressure as a function of need for social approval. Journal of Social Psychology, 1962, 58, 171-181.

Tolman, E. C. Theories of learning. In F. A. Moss (Ed.), Comparative Psychology. New York: Prentice-Hall, 1934.

Tulkin, S. R., Mueller, J. P. and Conn, T. K. Need for approval and popularity: Sex differences in elementary school students. Journal of Consulting and Clinical Psychology. 1969, 33, 35-40.

TABLE 1

Means and Standard Deviations of Locus of Control Scores by Age in Pilot Sample

Grade	Mean	Standard Deviation	Number
3	19.1	3.86	28
4	17.5	4.41	25
5	14.8	3.92	20
6	14.8	4.33	25
7	11.7	4.06	16
8	12.3	4.44	23
9	11.6	4.26	15

TABLE 2

Intelligence Test Scores* for Males and Females in the Sample

	Male		Female	
Grade	Mean	Standard Deviation	Mean	Standard Deviation
3 and 4	102.37	11.87	104.61	17.34
5 and 6	103.54	16.80	103.39	11.86
8, 9 and 10	101.22	14.60	105.94	15.71

*As measured by Otis Lennon scales.

TABLE 3

Means and Standard Deviations of Nowicki-Strickland Locus of Control Scores for Males and Females in Experimental Sample: Grades 3 through 12

	Males			Females		
Grade	Mean	Standard Deviation	Number	Mean	Standard Deviation	Number
3	17.97	4.67	(44)	17.38	3.06	(55)
4	18.44	3.58	(59)	18.80	3.63	(45)
5	18.32	4.38	(40)	17.00	4.03	(41)
6	13.73	5.16	(45)	13.32	4.59	(43)
7	13.15	4.87	(65)	13.94	4.23	(52)
8	14.73	4.35	(75)	12.29	3.58	(34)
9	13.81	4.06	(43)	12.25	3.75	(44)
10	13.05	5.34	(68)	12.98	5.31	(57)
11	12.48	4.81	(37)	12.01	5.15	(53)
12	11.38	4.74	(39)	12.37	5.05	(48)

TABLE 4

Nowicki-Strickland Scale
and Item-Total Correlations with that Item Missing for Subject in the
Third, Seventh and Eleventh Grades of the Sample

	Item	Male			Female		
		3	7	11	3	7	11
(Y)	1. Do you believe that most problems will solve themselves if you just don't fool with them?	.153	.219	.107	.323	.165	.140
(N)	2. Do you believe that you can stop yourself from catching a cold?	.140	.279	.065	.398	.176	.154
(Y)	3. Are some kids just born lucky?	.281	.497	.224	.431	.244	.501
(N)	4. Most of the time do you feel that getting good grades means a great deal to you?	.146	.101	.244	.079	.171	.270
(Y)	5. Are you often blamed for things that just aren't your fault?	.204	.167	.225	.007	.409	.617
(N)	6. Do you believe that if somebody studies hard enough he or she can pass any subject?	.385	.026	.520	.263	.075	.205
(Y)	7. Do you feel that most of the time it doesn't pay to try hard because things never turn out right anyway?	.165	.390	.409	.343	.328	.402
(Y)	8. Do you feel that if things start out well in the morning that it's going to be a good day no matter what you do?	.150	.077	.307	.215	.040	.095
(N)	9. Do you feel that most of the time parents listen to what their children have to say?	.222	.330	.240	.484	.056	.192
(N)	10. Do you believe that wishing can make good things happen?	.126	.059	.083	.236	.285	.032
(Y)	11. When you get punished does it usually seem its for no good reason at all?	.366	.324	.456	.244	.263	.225
(Y)	12. Most of the time do you find it hard to change a friend's (mind) opinion?	.113	.229	.208	.039	.272	.396
(N)	13. Do you think that cheering more than luck helps a team to win?	.348	.362	.298	.017	.397	.352

		Item	Male			Female		
			3	7	11	3	7	11
(Y)	14.	Do you feel that it's nearly impossible to change your parent's mind about anything?	.456	.161	.417	.175	.396	.436
(N)	15.	Do you believe that your parents should allow you to make most of your own decisions?	.004	.234	.298	.172	.329	-.012
(Y)	16.	Do you feel that when you do something wrong there's very little you can do to make it right?	.078	.490	.306	.415	.568	.243
(Y)	17.	Do you believe that most kids are just born good at sports?	.284	.322	.136	.347	.130	.170
(Y)	18.	Are most of the other kids your age stronger than you are?	.227	.337	.381	.175	.480	.151
(Y)	19.	Do you feel that one of the best ways to handle most problems is just not to think about them?	.368	.262	.506	.329	.367	.239
(N)	20.	Do you feel that you have a lot of choice in deciding who your friends are?	.086	.256	.143	.356	.385	.192
(Y)	21.	If you find a four leaf clover do you believe that it might bring you good luck?	.139	.172	.300	.186	.285	.342
(N)	22.	Do you often feel that whether you do your homework has much to do with what kind of grades you get?	.149	.003	.034	.065	.009	.156
(Y)	23.	Do you feel that when a kid your age decides to hit you, there's little you can do to stop him or her?	.273	.049	.150	.177	.294	.464
(Y)	24.	Have you ever had a good luck charm?	.086	.163	.047	.075	.077	.037
(N)	25.	Do you believe that whether or not people like you depends on how you act?	.028	.016	.150	.148	.113	.252

	Item	Male			Female		
		3	7	11	3	7	11
(N)	26. Will your parents usually help you if you ask them to?	.230	.140	.366	.218	.000	.166
(Y)	27. Have you felt that when people were mean to you it was usually for no reason at all?	.314	.144	.306	.500	.178	.165
(N)	28. Most of the time, do you feel that you can change what might happen tomorrow by what you do today?	.116	.152	.100	.283	.302	.415
(Y)	29. Do you believe that when bad things are going to happen they just are going to happen no matter what you try to do to stop them?	.367	.322	.455	.443	.608	.564
(N)	30. Do you think that kids can get their own way if they just keep trying?	.154	.208	.129	.203	.005	.429
(Y)	31. Most of the time do you find it useless to try to get your own way at home?	.164	.446	.530	.211	.342	.448
(N)	32. Do you feel that when good things happen they happen because of hard work?	.423	.318	.281	.290	.263	.245
(Y)	33. Do you feel that when somebody your age wants to be your enemy there's little you can do to change matters?	.052	.336	.559	.310	.517	.226
(N)	34. Do you feel that it's easy to get friends to do what you want them to?	.101	.099	.181	.276	.462	.600
(Y)	35. Do you usually feel that you have little to say about what you get to eat at home?	.143	.353	.344	.289	.384	.275
(Y)	36. Do you feel that when someone doesn't like you there's little you can do about it?	.122	.295	.416	.132	.473	.360

		Item	Male 3	Male 7	Male 11	Female 3	Female 7	Female 11
(Y)	37.	Do you usually feel that it's almost useless to try in school because most other children are just plain smarter than you are?	.456	.205	.625	.341	.308	.157
(N)	38.	Are you the kind of person who believes that planning ahead makes things turn out better?	.158	.343	.096	.531	.264	.458
(Y)	39.	Most of the time, do you feel that you have little to say about what your family decides to do?	.203	.269	.405	.343	.648	.365
(N)	40.	Do you think it's better to be smart than to be lucky?	.039	.273	.349	.435	.333	.316

TABLE 5

Correlations Between Nowicki-Strickland Locus of Control and Children's Social Desirability Scale Scores for Subjects in the Third through the Twelfth Grades

Grade	Male	Number	Female	Number
3	.137	(46)	.410	(41)
4	.107	(42)	-.027	(56)
5	.093	(60)	-.126	(52)
6	-.183	(42)	-.008	(46)
7	.120	(53)	.157	(62)
8	.159	(29)	.080	(66)
9	.223	(44)	-.081	(44)
10	.157	(46)	-.041	(70)
11	.245	(37)	-.055	(35)
12	.069	(47)	-.073	(39)

TABLE 6

Correlations Between Nowicki-Strickland Locus of Control Scores and Occupational Level for Grades 3 through 10

Grade	Male	Number	Female	Number
3	-.141	(27)	-.072	(22)
4	-.277*	(27)	-.044	(31)
5	-.389**	(36)	-.052	(35)
6	-.059	(30)	-.464**	(26)
7	-.327**	(35)	-.229	(41)
8	-.195	(25)	-.068	(48)
9	-.206	(33)	-.247*	(39)
10	-.163	(27)	-.301*	(33)

*$p < .10$

**$p < .05$

TABLE 7

Correlations Between Nowicki-Strickland Locus of Control Scores and Parental Level of Education for Subjects in Grades 3, 4, 5, 6, 7 and 10

Grade	Male	Number	Female	Number
3	-.096	(36)	-.044	(28)
4	-.081	(51)	-.027	(31)
5	-.129	(44)	-.050	(45)
6	-.176	(36)	-.005	(32)
7	-.264	(41)	-.169	(35)
10	-.256	(40)	-.051	(38)

TABLE 8

Correlations Between Nowicki-Strickland Locus of Control and Achievement Test Scores for Subjects in Elementary and Secondary Grades

Grade	Male	Number	Female	Number
3	-.284*	(34)	-.178	(27)
4	-.118	(50)	-.195	(31)
5	-.398***	(42)	-.254*	(45)
6	-.272*	(33)	-.112	(32)
7	-.335**	(35)	-.306*	(34)
10	-.442***	(49)	-.034	(38)
12	-.451***	(38)	-.004	(48)

*$p < .10$

**$p < .05$

***$p < .01$

The N-S Personal Reaction Survey

Grades 1 through 6

Yes	No		
___	___	1.	Are some kids just born lucky?
___	___	2.	Do you feel that most of the time it doesn't pay to try hard because things never turn out right anyway?
___	___	3.	Do you feel that most of the time parents listen to what their children have to say?
___	___	4.	Do you believe that wishing can make good things happen?
___	___	5.	Do you feel that it's nearly impossible to change your parent's mind about anything?
___	___	6.	Do you feel that when you do something wrong there's very little you can do to make it right?
___	___	7.	Do you believe that most kids are just born good at sports?
___	___	8.	Are most of the other kids your age stronger than you are?
___	___	9.	Do you feel that one of the best ways to handle most problems is just not to think about them?
___	___	10.	If you find a four leaf clover do you believe that it might bring you good luck?
___	___	11.	Do you feel that when a kid your age decides to hit you, there's little you can do to stop him or her?
___	___	12.	Have you felt that when people were mean to you it was usually for no reason at all?
___	___	13.	Do you believe that when bad things are going to happen they just are going to happen no matter what you try to do to stop them?
___	___	14.	Most of the time do you find it useless to try to get your own way at home?
___	___	15.	Do you feel that when somebody your age wants to be your enemy there's little you can do to change matters?
___	___	16.	Do you usually feel that you have little to say about what you get to eat at home?
___	___	17.	Do you feel that when someone doesn't like you there's little you can do about it?
___	___	18.	Do you usually feel that it's almost useless to try in school because most other children are just plain smarter than you are?
___	___	19.	Are you the kind of person who believes that planning ahead makes things turn out better?
___	___	20.	Most of the time, do you feel that you have little to say about what your family decides to do?

The N-S Personal Reaction Survey

Grades 7 through 12

Yes	No		
___	___	1.	Are some kids just born lucky?
___	___	2.	Are you often blamed for things that just aren't your fault?
___	___	3.	Do you feel that most of the time it doesn't pay to try hard because things never turn out right anyway?
___	___	4.	Do you feel that most of the time parents listen to what their children have to say?
___	___	5.	When you get punished does it usually seem it's for no good reason at all?
___	___	6.	Most of the time do you find it hard to change a friend's (mind) opinion?
___	___	7.	Do you feel that it's nearly impossible to change your parent's mind about anything?
___	___	8.	Do you feel that when you do something wrong there's very little y ou can do to make it right?
___	___	9.	Do you believe that most kids are just born good at sports?
___	___	10.	Do you feel that one of the best ways to handle most problems is just not to think about them?
___	___	11.	Do you feel that when a kid your age decides to hit you, there's little you can do to stop him or her?
___	___	12.	Have you felt that when people were mean to you it was usually for no reason at all?
___	___	13.	Most of the time, do you feel that you can change what might happen tomorrow by what you do today?
___	___	14.	Do you believe that when bad things are going to happen they just are going to happen no matter what you try to do to stop them?
___	___	15.	Most of the time do you find it useless to try to get your own way at home?
___	___	16.	Do you feel that when somebody your age wants to be your enemy there's little you can do to change matters?
___	___	17.	Do you usually feel that you have little to say about what you get to eat at home?
___	___	18.	Do you feel that when someone doesn't like you there's little you can do about it?
___	___	19.	Do you usually feel that it's almost useless to try in school because most other children are just plain smarter than you are?
___	___	20.	Are you the kind of person who believes that planning ahead makes things turn out better?
___	___	21.	Most of the time, do you feel that you have little to say about what your family decides to do?