Psychological Reports, 1974, 34, 863-870. © Psychological Reports 1974

DESCRIPTIVE STATISTICS FOR TWO CHILDREN'S SOCIAL DESIRABILITY SCALES, GENERAL AND TEST ANXIETY, AND LOCUS OF CONTROL IN ELEMENTARY SCHOOL CHILDREN

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Summary.—As part of a larger study of articulatory deviant children, 5 personality instruments were administered to 671 children in Grades 1 through 5 in 7 public schools. Complete descriptive statistics on grade by sex samples, analyses of variance for grade by sex by school effects, test-retest coefficients, and intercorrelations are presented. Comparison of the descriptive data and published norms suggests that investigators should give serious consideration to possible influences of stimulus modes, response modes, and examiner behaviors on children's self-report scores for these constructs. Inter- and intra-scale characteristics look promising for multivariate analyses of the role of these constructs as trait, moderator, or suppressor variables in predicting articulation improvement with or without speech therapy.

Interest in personality correlates of children with articulation disorders spans over forty years of empirical research (see reviews by Spriestersbach, 1956; Goodstein, 1958; Bloch & Goodstein, 1971; Shriberg, 1971a). While literature reviews indicate that no personality traits have been consistently associated with articulatory deviant children, Goodstein (1958) and Shriberg (1971a) have been extremely critical of methodological approaches. Particularly in the area of personality dimensions as predictors of articulation correction, previous research has yielded essentially no predictive tools for the school speech clinician. In the current accountability era of education, renewed attempts to determine the portion of correction variance which might be attributed to trait or motivational constructs would seem to be warranted.

As part of a larger study of personality correlates of children with articulation errors, five personality scales were administered to 671 elementary school children: the Children's Social Desirability Questionnaire (Crandall, Crandall, & Katkovsky, 1965); General Anxiety and Test Anxiety (Wallach & Kogan, 1965, pp. 208-209); the Locus of Control Scale for Children of Nowicki and Strickland[2]; and the Young Children's Social Desirability Scale (Ford & Rubin, 1970). The first four measures are appropriate for Grades 3, 4, and 5, while the

[1]This research was supported by a NIH Biomedical Sciences Support Grant administered by The Graduate School, University of Wisconsin. The author expresses sincere thanks to James Lakore, Arlene Meyer, Charlotte Musin, and teachers and students in Joint School District 3, Middleton Area Schools, Middleton, Wisconsin, for their gracious assistance and support throughout this project. Gratitude is also expressed to Kathy Behrens, Larry Rider, Jacob Evanson, and Linda Shriberg for their competent assistance with the several phases of data collection and reduction. Requests for reprints should be addressed to Lawrence D. Shriberg, Department of Communicative Disorders, 1975 Willow Drive, University of Wisconsin, Madison, Wisconsin 53706.

[2]S. Nowicki, & B. R. Strickland. A locus of control scale for children. (Unpublished paper, Emory Univer., 1970)

Young Children's Social Desirab'lity Scale is suitable for first and second grade children.

While our interests are in the statistical properties of these scales as candidates for multivariate prediction of speech improvement with and without speech therapy, this report is prepared as a service to researchers who may have other interests in descriptive data on these scales.

METHOD

Stimuli and Test Booklets

For control purposes, a pre-recorded audio tape was constructed to present the measures for Grades 3, 4, and 5. Since previous work by this investigator with these and other measures showed no order effects for scale presentation, the sequence of scales was arbitrarily set at Children's Social Desirability Questionnaire, General Anxiety and Test Anxiety (randomized items with fillers), and Locus of Control. A professional male announcer was rehearsed to read the items for each scale. Care was taken to produce readings of each item which were pleasant, but non-biasing in the sense that intonation would not suggest the "appropriate" response. Acceptable readings were recorded on a Nagra IV L audio tape recorder with matching microphone, allowing 5 sec. between items. For the Young Children's Social Desirability Scale, a female *E* was trained to read the items for live presentation, taking the same care to avoid intonational or postural-gestural bias.

Multi-colored response booklets titled "What I Am Like" were constructed for the battery of measures. Each of the three differently colored pages contained columns of numbered items for circling "YES" or "NO" (Children's Social Desirability; Locus of Control) or "LIKE ME" or "NOT LIKE ME" (General and Test Anxiety).

Subjects and Testing

The study was conducted in Middleton, Wisconsin, a midwestern town adjoining a university community. Testing was conducted in seven elementary schools comprising a unified school district. All testing was conducted by the one female *E*.

For the battery of measures for Grades 3, 4, and 5, the *E* arranged to test entire classrooms with the homeroom teachers absent. Instructions given orally to the children were:

[Instructions for filling out the booklet face sheets] "A man is going to ask you some questions on this tape recorder. These questions are different from other questions that you are asked in school because there are no right or wrong answers. Also, no one is going to see your answers except a man who doesn't know you. No one will see your answers, not your teachers, or your principal, or your parents—no one but a man who works at a college will see your answers. When we finish today, I will put your booklets in this big envelope and mail them to the man."

"Now, let's turn to the first page. See the numbers from one to fifty? For each number, the man on the tape recording is going to ask you a question about yourself. These questions are about how you think and feel and so they have no right or wrong answers. People think and feel differently. For example, if I asked you 'Do you like to play baseball?', some of you would circle 'YES' and some of you would circle 'NO'. Your answer depends on how you think and feel. The questions are about how you think and feel about school, and about a lot of other things. Remember, listen carefully to each question and answer it by deciding if you feel that way. Let's begin." [Instructions briefly repeated on the tape by the announcer; reinstructions given between each test.]

E was able to observe if children were following along, but arranged to sit removed from the children, deliberately appearing busy with her notebook to give the children a sense of privacy. Test sessions averaged 35 min., including a brief "stretch."

For the Young Children's Social Desirability Scale, the same *E* scheduled individual testing of first- and second-graders in a quiet room in each school. The forced-choice interview procedure recommended by Ford and Rubin (1970; personal communication) assured that a child understood each question before coding a response. Testing for this measure averaged five to six minutes per *S*.

For test-retest stability, 100 *S*s were retested in the same manner approximately one month after original testing.

RESULTS

All test booklets were screened for invalid or incomplete data; approximately 10 booklets, most from 5th graders, were discarded before the reduction for computer analyses.

Table 1 presents descriptive statistics for the five measures. The coefficients of kurtosis and skew indicate that all measures approach symmetrical, mesokurtic distributions; Children's Social Desirability, General Anxiety, and

TABLE 1

DESCRIPTIVE STATISTICS FOR FIVE PERSONALITY SCALES

Scale*	Max. Score	Sex	Grade	*M*	*SD*	SE_M	Range	Skew	Kurtosis
Children's Social Desirability Questionnaire	47	G	3	21.56	9.89	1.05	4-46	−.31	2.29
			4	17.45	9.46	1.09	3-38	.39	2.11
			5	13.88	7.93	.98	2-36	.80	3.27
		B	3	16.21	8.14	.97	2-40	.39	2.85
			4	12.98	7.28	.82	1-28	.25	1.86
			5	11.65	7.21	.77	0-33	.99	3.59
General Anxiety	20	G	3	10.29	4.41	.47	0-18	−.31	2.22
			4	9.50	4.20	.48	1-20	.23	2.93
			5	9.77	3.96	.49	2-18	−.15	2.18
		B	3	6.38	4.19	.50	0-17	.19	2.30
			4	6.01	3.78	.43	0-16	.43	2.57
			5	5.63	3.64	.39	0-17	.38	2.99
Test Anxiety	19	G	3	6.75	3.93	.42	0-18	.53	2.95
			4	7.18	4.15	.48	1-18	.52	2.60
			5	7.51	4.28	.53	0-18	.36	2.47
		B	3	5.73	4.12	.49	0-19	.78	3.49
			4	5.80	4.33	.49	0-16	.54	2.27
			5	5.72	3.78	.41	0-17	.41	2.61
Locus of Control	20	G	3	11.08	3.84	.41	0-20	−.33	3.62
			4	10.71	3.53	.41	4-20	.22	2.65
			5	10.69	3.09	.38	4-18	−.09	2.68
		B	3	10.14	4.22	.50	0-20	−.08	2.76
			4	10.89	3.63	.41	2-20	−.26	3.17
			5	10.37	3.25	.35	3-18	−.04	2.56
Young Children's Social Desirability Scale	26	G	1	13.53	5.75	.86	4-26	−.15	2.06
			2	13.79	6.51	.99	5-26	.23	1.90
		B	1	15.44	5.94	.75	4-26	−.51	2.51
			2	13.07	5.88	.80	3-26	−.20	2.20

Note.—*n*s for girls in Grades 3, 4, 5 = 89, 76, and 65, respectively; for boys 71, 79, and 86, respectively. *n*s for girls in Grades 1 and 2 = 45 and 54, respectively; for boys 63 and 54.

*Higher scores in direction of socially desirable responses, anxiety, and external locus of control.

Test Anxiety are slightly skewed to the higher scores, while Locus of Control and Young Children's Social Desirability are slightly skewed to the lower scores. Ranges generally encompass almost the full scale.

For each measure, a 2 × 3 × 6 analysis of variance was performed to assess effects of sex, grade, and school on personality scores. Only one three-way interaction obtained across the five measures: Children's Social Desirability ($F = 3.39$, $df = 10/378$, $p < .001$). Four two-way interactions were significant at the .05 level: Sex × School for General Anxiety ($F = 2.50$, $df = 5/378$), and Locus of Control ($F = 2.61$, $df = 5/378$), and Grade × School interactions for Test Anxiety ($F = 1.84$, $df = 10/378$) and Locus of Control ($F = 2.31$, $df = 10/378$). There were no significant Sex × Grade interactions.

For main effects, girls' scores were significantly higher than boys' for Children's Social Desirability ($F = 21.58$, $df = 1/378$, $p < .001$), General Anxiety ($F = 79.08$, $df = 1/378$, $p < .001$), and Test Anxiety ($F = 9.33$, $df = 1/378$, $p < .005$); F values were less than 1.0 for the other two measures. As evident in Table 1, the trends for girls to average higher scores than boys was evident across all five grades for 12 of the 14 comparisons. Only one main effect obtained for grade: Children's Social Desirability scores were significantly lowered for both sexes from the third to the fourth to the fifth grades ($F = 17.19$, $df = 2/378$, $p < .001$). Thus, while main effects for sex and grade were found for Children's Social Desirability, the scale tapping this construct in younger children (Young Children's Social Desirability Scale) yielded no significant main or interaction effects.

Finally, for two measures, there were significant differences in personality scores among the six schools: General Anxiety ($F = 4.10$, $df = 5/378$, $p < .001$) and Locus of Control ($F = 5.65$, $df = 5/378$, $p < .001$). When the significant mean differences were contrasted according to a five-point scale

TABLE 2

TEST-RETEST COEFFICIENTS (PEARSON PRODUCT-MOMENT) FOR FIVE PERSONALITY SCALES

Scale	Grade					Sex	
	1	2	3	4	5	Girls	Boys
Children's Social Desirability			.76‡	.65‡	.54*	.88‡	.42*
General Anxiety			.71‡	.77‡	.80‡	.82‡	.42*
Test Anxiety			.65‡	.75‡	.70‡	.73‡	.69‡
Locus of Control			.76‡	.54†	.31	.47†	.59‡
Young Children's Social Desirability	.70‡	.96‡				.79‡	.90‡

Note.—*n*s for Grades 3, 4, 5 = 25, 27, 22, respectively; for girls and boys 38, 36. *n*s for Grades 1, 2 = 14, 12; for girls and boys 14, 12.
*$p < .01$. †$p < .005$. ‡$p < .001$.

characterization of each school from rural to suburban,[3] no obvious trends were apparent.

Table 2 presents the test-retest coefficients for each measure. Although 23 of the 24 coefficients are significant at the .01 percent level or better, stability ranges from low to moderate to high across sex and grades. Girls are considerably more stable than boys on Children's Social Desirability and General Anxiety, while boys are somewhat more stable on Locus of Control and Young Children's Social Desirability. A strong trend toward lowered stability in higher grades is evident for Locus of Control and, to a lesser extent, for Children's Social Desirability. For Young Children's Social Desirability, however, considerably more stability is evident in the second than in the first grade scores.

Table 3 presents the intercorrelations for the four measures given to *Ss* in Grades 3 to 5. The intercorrelations are predominantly low and nonsignificant across grade and sex, with the exception of the moderate correlation of General Anxiety with Test Anxiety.

TABLE 3
INTERCORRELATIONS (PEARSON PRODUCT-MOMENT) FOR FOUR PERSONALITY SCALES

Scales	Sex	Grade			Combined
		3	4	5	
Children's Social Desirability & General Anxiety	Girls	−.11	.03	−.30	.06
	Boys	−.12	−.06	.03	
Children's Social Desirability & Test Anxiety	Girls	−.18	−.12	−.11	−.11
	Boys	−.33†	−.03	−.15	
Children's Social Desirability & Locus of Control	Girls	−.30†	−.04	.05	−.08
	Boys	−.01	−.14	−.12	
General Anxiety and Test Anxiety	Girls	.59‡	.49‡	.47‡	.51‡
	Boys	.49‡	.45‡	.51‡	
General Anxiety & Locus of Control	Girls	.29*	.14	.22	.23‡
	Boys	.36†	.12	.21	
Test Anxiety & Locus of Control	Girls	.24	.11	.24	.25‡
	Boys	.31*	.37‡	.22	

Note.—*ns* for girls in Grades 3, 4, 5 = 89, 76, and 65, respectively; for boys 71, 79, and 86, respectively.
*$p < .01$. †$p < .005$. ‡$p < .001$.

DISCUSSION

For two personality scales, the obtained mean scores differed by more than a standard deviation from available normative data. The Children's Social Desirability Questionnaire means averaged 8.8 points lower than those published by Crandall, Crandall, and Katkovsky (1965), while Locus of Control scale means averaged 7.3 points lower than those reported by Nowicki and Strickland (1970). Comparative means for the General Anxiety and Test Anxiety scales are not available. To interpret these large and unexpected differences, inspec-

[3]Gratitude is expressed to Superintendent John W. Stofflet for his assistance in this task and other aspects of the study.

tion of potential methodological differences across the three studies is warranted.

Both Crandall, Crandall, and Katkovsky and the present study sampled children from midwestern communities, while the Nowicki and Strickland data were taken from southern communities. All three sample communities are adjacent to universities; no children were from large metropolitan school systems. Comparison of the socio-economic descriptions indicates that stratification is essentially comparable across the three studies. For the Locus of Control data, the geographic differences between samples may initially suggest an interpretation that midwestern children are more internally oriented than southern children. The obtained main effect for school (the largest means difference among the seven schools was approximately four points) could further suggest that this construct is sensitive to socio-economic differences and their correlates. However, the markedly lowered need for approval scores in the present sample, in light of the above information, can not readily be ascribed to differences in sample characteristics between the present and reference publication. For differences obtained on both scales, an alternative interpretation will be offered.

Sex of examiner is another possible source of variance, although sex of examiner(s) is not completely reported in the Crandall, Crandall, and Katkovsky or the Nowicki and Strickland studies. However, both Cruse (1963) and recently Weitz (1972) in a study using the Children's Social Desirability Questionnaire with eight examiners, have noted no significant effect of sex on this instrument. Additionally, relative differences between girls' and boys' means scores in the present study parallel those given in the reference publications, counter-indicating any cross-sex effects. These considerations, plus the possible neutralizing effect of having a female examiner present audio-taped stimuli by a male announcer, suggest that sex of examiner could not plausibly account for the differences in question.

Order effects could be implicated in the Locus of Control means, because it was the last scale in the battery. However, our preliminary work with these and other measures has not indicated any significant order effects, although some lower level interactions with order have been obtained. We do note that older children are sometimes given to "talk-outs" especially toward the end of a group retest session, which might partially explain the poor stability (.31) obtained by fifth graders on Locus of Control. However, since the Social Desirability scale was given first, order effects cannot be implicated for these lowered means.

For some possibly more fertile sources of variability, consider several aspects of the stimulus and response modes across the three studies. First, previous work with young children (Shriberg, 1971b) indicated that test items should be read with pleasing, but intonationally non-biasing inflection. Because social desirability "pull" can be evoked by examiner's intonation as well as item content, a considerable amount of training was given to ensure that items were read with

friendly intonation, but neutral stress relative to the poles of the construct. Perhaps the results of these procedures, in contrast to other studies, reduced those intonational stimulus cues which evoke the very behaviors which these scales attempt to assess.

Second, differences in the mode of presentation of scale items are apparent among the three studies. For the Children's Social Desirability Questionnaire, Crandall, Crandall, and Katkovsky (1965) used pre-recorded stimuli, but no information on sex of announcer or how items were read is provided. Importantly, each child was tested individually, with a child required to state his choice for each item to an examiner who duly recorded it on a form. Although item delivery was standardized across *Ss*, socially desirable responses should be more probable in such a test environment. In addition to the influence of making their choices public, children might be particularly desirous of "doing the right thing" when an adult is apparently "marking" each of their answers.

The mode of testing for the Locus of Control reference data of Nowicki and Strickland[2] indicates that children were tested in groups. Each child recorded his own response privately, but stimuli were presented by an examiner who read each item aloud twice. Aside from the loss of standardization of stimulus presentations across subject groups, the presence of the examiner actively presenting items may have lent added discriminative stimuli influencing scores toward external locus of control. Since many of the Locus of Control items pit children against adult authority, the visual stimuli properties of the live examiner, in comparison with the disembodied verbal stimuli used in the present study, may have evoked the more external scores.

Summarizing these issues, the means scores obtained in the present study on the Children's Social Desirability Questionnaire and the Locus of Control Scale for Children are more than one standard deviation lower than the respective norms for each measure. The standard deviations obtained are very similar to those given in the reference publications. At the outset, it would seem that the present sample had reduced need for approval and more internal locus of control orientation. However, because our sample sizes for these grades is larger than the reference publications by approximately one-third in each case, effects of examiners' sex cannot be implicated, and sample demographics and order effects can at least not account for the lowered need for approval means, differences in stimulus and response modes are proposed as the primary sources of variance in reconciling these differences.

These unexpected findings suggest that serious attention to methodological considerations in the continued use of these scales with children is warranted. On this issue, Weitz (1972) has commented on the significance of the testing context in assessing need for approval scores, questioning the degree of social interaction appropriate for testing this construct. He argues against a "mechanical" testing session, directing his examiners to be "friendly" while engaging in five minutes of "casual conversation" with each child before individual testing. We suggest that this approach is defensible for experimental study of effects of different stimulus or setting conditions on the social desirability *response set*, but is wholly incorrect when the interest is on the use of this instrument to collect *trait* data. For the latter purposes, as in Crandall, Crandall, and Katkovsky (1965) or recently, Allaman, Joyce, and Crandall (1972), the appropriate testing situation seems to call for

standardized, socially neutral interactions between child and examiner. While in practice, researchers seem to favor individual, oral testing of children, the contrast between the means obtained in the present study and these reference publications suggests that reduction of interaction before and during testing yields lower scores on need for approval, and also possibly more internal scores. Acknowledging that confirmation of this interpretation awaits empirical test, the descriptive data here should be viewed in light of these methodological caveats.

As predictor variables, both each scale individually, and the battery collectively, possess adequate and attractive statistical characteristics. The distributional characteristics for each grade by sex sample look adequate for parametric analyses. The pattern of significant differences for sex and grade is essentially consistent with previous research on these dimensions. However, because the large differences in means obtained may be due to methodological differences, as discussed, further comment on the results of the analyses of variance is deferred. The test-retest coefficients indicate essentially adequate stability, although in the absence of item intercorrelation information, these coefficients may be under- or over-estimated. However, adequate internal reliabilities have been reported for each scale in the reference publications. Finally, the finding that the scales are not highly intercorrelated, except for the expected moderate correlation of General Anxiety and Test Anxiety, is encouraging for use of the battery in multivariate prediction. Following Wiggins' (1973) recent discussion of prediction paradigms, these constructs may be alternately useful as trait, moderator, or possibly suppressor (referring to the moderate correlation between the anxiety scales) variables in predicting articulation correction with or without therapy.

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Accepted January 16, 1974.