DIFFERENCES IN ADOLESCENT SCHOOL ATTITUDES AS A FUNCTION OF ACADEMIC LEVEL, ETHNICITY, AND GENDER

Donald L. MacMillan, Keith F. Widaman, Irving H. Balow, Rita E. Hemsley, and Todd D. Little

Abstract. The present study investigated the relations between dimensions of adolescents' attitudes toward school and their academic level, ethnicity, and gender. The Survey of School Attitudes, assessing four aspects of school attitudes, was administered to a sample of 1,140 eighth graders. Students were stratified by academic level (regular class, educationally marginal, learning handicapped), ethnicity (Anglo, Black, and Chicano), and gender. Results showed that regular class students held more favorable attitudes toward reading and social studies than did educationally marginal and learning handicapped students; the latter groups did not differ on several scales. Anglo students expressed less favorable attitudes than did the combined Black and Chicano samples on all four attitude scales. Gender differences in attitudes toward reading favored females; differences in attitudes toward science favored males. Implications of these results are discussed in terms of social comparisons.

Implicit in the arguments against special dayclass placement for mildly retarded students in the 1960s was the notion that segregation/labeling practices adversely affected children's attitudes toward self and toward school (MacMillan, Jones, & Aloia, 1974). Similarly, pressure to mainstream mildly handicapped children has been based, in part, on the belief that it would lead to improvement in achievement and attitudes (Gottlieb, 1981). In fact, central to the entire special education enterprise since its inception over 75 years ago has been an effort to provide educational experiences that minimize failure while promoting positive attitudes toward self and school (Hendrick & MacMillan, 1988, 1989).

Over the years, the debate in the field of special education has been over the specific environments and experiences that best achieve these goals: some researchers have advocated the protectiveness of special day classes, whereas others have argued that such placements are stigmatizing and may, therefore, affect attitudes negatively. In our opinion, the presumption that setting exerts the influence is questionable, given

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preplacement failure and varying degrees of success and failure experienced by mildly handicapped youngsters in any setting (e.g., special class, mainstreamed class).

Although the goal of providing children with mild learning handicaps experiences that promote favorable attitudes toward self and school has consistently been maintained, surprisingly little empirical evidence is available on mildly handicapped children's attitudes toward school, in general, and toward specific subject-matter areas, in particular. A literature search uncovered a few studies published in the 1970s (Gozali, 1972; Jones, 1972) that bear tangentially on the issue of mildly handicapped students' attitudes toward school. Unfortunately, these studies did not assess the mildly handicapped students' school attitudes using attitude scales, relying instead, on free responses to interview protocols.

However, a standardized attitude scale — The Wrightsman School Morale Scale — was used in at least two investigations contrasting EMR students in alternative educational settings (integrated vs. segregated) (Budoff & Gottlieb, 1976; Gottlieb & Budoff, 1972). In one of these studies, Gottlieb and Budoff (1972) reported that EMR students who were reintegrated into regular programs expressed more favorable attitudes toward school than did students retained in special classes.

In the second study (Budoff & Gottlieb, 1976), 31 EMR students were assigned randomly either to continue in special classes or to be integrated into regular classes with some services provided in a learning center. All these students were administered several scales, including the School Morale Scale, on three occasions: in the spring before assignment (when all were enrolled in special classes), six weeks into the school year in the fall, and again the following May. Results indicated that, despite the two samples expressing comparable attitudes in the spring before assignment, the integrated students showed more favorable attitudes toward school than did students in special classes after several weeks in the alternative placements and again the following spring. This pattern suggests progressively more favorable attitudes over time for the integrated EMR students. Again, the relative impact of setting and experiences within settings could not be isolated in these investigations.

Given the importance placed on attitudinal outcomes as educational goals, we are surprised by the dearth of research on school attitudes of mildly handicapped students. These are among the most likely special education students to be mainstreamed in regular classes, where the possibility exists for undue frustration as a result of an inability to compete academically with nonhandicapped classmates. The current press for mainstreamed placements and the Regular Education Initiative (REI), coupled with the priority of attitudinal outcomes, highlights the need for research in this area.

Limited evidence exists on one group of mildly handicapped students' (i.e., EMR students) negative perceptions of their programs (Gozali, 1972). Until 1973, the EMR classification permitted identifying children with IQs as high as 85 (MacMillan, 1989); the research found pre-dates that change in criteria. Among former EMR students contacted to get their perceptions, 85% felt that their special day classes were degrading and useless.

Jones (1972) examined the reactions of EMR high school students to their special class placements and described a number of strategies they employed to avoid being identified as members of the EMR class. For example, they lied about coursework, entered the classroom only after hallways were clear, and resorted to a variety of other techniques to avoid being found out.

Although not directly studying attitudes toward school, the Gozali (1972) and Jones (1972) investigations provide anecdotal data that can be interpreted to suggest that EMR students do not enjoy their school experience in special segregated day classes. No studies of the attitudes of students with LD toward school were found. The field remains uninformed about the way mildly handicapped students feel toward school, especially since placements in regular classes are more common today, thereby rendering research designed to examine the effects of setting somewhat outdated.

Students' experiences in classes and the degree of academic success, rather than the settings in which such experiences occur, need to be investigated. Moreover, the previously cited work needs to be replicated as the lack of comparison groups makes it impossible to determine whether mildly handicapped students' school-related attitudes differed from those of students at other ranges of academic achieve-

Subjects

Subjects were selected from four institutions in California. Students were well-matched for academic potential but not for handicapped (LD) or non-handicapped (Regular Class) status.

The ratings of students' performance by their teachers, as border line or non-handicapped (LD) or non-handicapped (Regular Class) status, were used for the purpose of the study. These "marginal" students are those who are average or above average, yet unable to succeed at their current level of education. The group of EMR students was divided into two to gain the most from the analysis of the results. These were the same groups that were used for the study of the regular classes.
ment. Further, the limited research that does exist fails to test for gender and ethnic group differences in mildly handicapped students’ attitudes. Given the consistent pattern of findings regarding gender differences in achievement in, and attitudes toward, certain subject-matter areas (e.g., math) (Dweck, 1986; Tittle, 1986), the failure to design studies that permit testing for gender differences constitutes a major flaw. Furthermore, the historical concern regarding overrepresentation of minority group children in special education (Heller, Holtzman, & Messick, 1982) also suggests that an examination of ethnic group differences is in order.

In the present investigation, students differing in academic performance were compared on their attitudes toward different subject-matter areas. The sampling design permitted comparisons not only of students differing on academic levels of achievement, but also on the basis of gender and ethnicity. Consequently, it was possible to test for differences in attitudes toward school as a function of achievement level, gender, ethnicity, and the various combinations thereof.

**METHOD**

**Subjects**

Subjects were selected during eighth grade from four large school districts in southern California. Schools in which subjects were enrolled were well integrated. Three groups differing in academic level were created: Learning Handicapped (LH), Educationally Marginal (EM), and Regular Class (RC).

The rationale behind selecting three groups of students derived from the possibility that former borderline mentally retarded students are ineligible for special education services as either EMR or LD (MacMillan, 1989). As a result, these students are enrolled in regular education without ancillary support services and, it was hypothesized, are likely not to be academically successful, which could impact their school attitudes. These “marginal” students lack the aptitude of average and above-average students and, at the same time, lack the protectiveness of special education services. Therefore, they constitute a group that could be contrasted with the other two to gain some insights into the effects of regular class placement on school attitudes when the probability of academic success is low.

Learning Handicapped is a California special education program category that subsumes children who, in other states, might be labeled educable mentally retarded (EMR), learning disabled (LD), behavior disordered, or neurologically impaired. Learning Handicapped is defined in the California Education Code (Cal Ed Code & 56600 [1980]) as including pupils under the age of 21 years who, by reason of marked learning or behavior disorders, or both, cannot profit from the regular education program, and who, as a result thereof, require special education programs. Such learning or behavior disorders can be associated with a neurological handicap, emotional disturbance, learning disability, mild handicap, or can be attributable to mental retardation. The students served under the LH rubric receive services in resource specialist programs or special day classes for LH students, depending on the degree of their disability.

The second group of students, the EM, were identified based on their seventh-grade achievement test scores. Thus, students who scored in the first quartile on either reading or math subtests were designated as EM.

RC students, the third group, were selected from pupils in the regular program who scored in the second quartile or higher for both reading and math on their seventh-grade achievement tests.

Lists were created for each of the three groups and were stratified by ethnic group (Anglo, Black, Chicano) and gender. Stratified random sampling procedures were employed to select subjects from lists; consent letters were sent to the parents of chosen students. This procedure resulted in a sample of 1,140 subjects. The breakdown of the sample by academic level, gender, and ethnicity is shown in Table 1.

**Instruments**

Survey of School Attitudes. During the spring of their eighth-grade year, all subjects were administered the Survey of School Attitudes (SSA; Hogan, 1975) at the school sites, in groups of approximately 30. The SSA consists of 60 items, divided into four scales (mathematics, social studies, science, and reading/language). Students were instructed to select one of three responses (Like, Not Sure/Don’t Care, or Dislike) in responding to each item. Administration lasted 10-15 minutes for each group.

Selection of the SSA was based, in part, on the desire to use an inventory that treated
### Table 1
Demographic Characteristics of Sample

<table>
<thead>
<tr>
<th>Ethnic Group</th>
<th>Learning Handicapped (N=242)</th>
<th>Educationally Marginal (N=364)</th>
<th>Regular Class (N=534)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anglo</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>107</td>
<td>122</td>
<td>162</td>
</tr>
<tr>
<td>Females</td>
<td>47</td>
<td>70</td>
<td>96</td>
</tr>
<tr>
<td>Black</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>18</td>
<td>28</td>
<td>61</td>
</tr>
<tr>
<td>Females</td>
<td>11</td>
<td>14</td>
<td>61</td>
</tr>
<tr>
<td>Chicano</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>39</td>
<td>67</td>
<td>79</td>
</tr>
<tr>
<td>Females</td>
<td>20</td>
<td>63</td>
<td>75</td>
</tr>
</tbody>
</table>

School-related attitudes as multidimensional in nature. The unidimensional approach to measuring school-related attitudes has been criticized as obscuring important distinctions (Engin, Wallbrown, & Brown, 1976; Gardner, 1975; Meier & McDaniel, 1975), and several investigators have found that students respond differently to scales assessing different dimensions of school-related attitudes (Beck, 1977).

Hogan (1975) reported split-half reliability and alpha coefficients on the SSA ranging from .77 to .91, with a median of .85. Based on a large national sample, norms are available by item and scale for each grade. Conversations with the test author (T. P. Hogan, personal communication, April 16, 1985) suggested that scores on the four scales decrease by junior high-school age and continue to decrease during high school. Because the normative scores on most items and scales at the 8th-grade level are close to midrange, an adequate range remains for accommodating attitude changes for several years.

Preliminary analyses were performed on data from the present study to investigate the psychometric properties of SSA scales in our sample. Across all 1,140 students, coefficient alpha internal-consistency reliabilities for the four school attitude scales were high, ranging from .830 to .908. Specifically, for the 534 RC students, coefficient alphas ranged from .817 to .912; for the 364 EM students, from .833 to .903; and, for the 242 LH students, from .838 to .910. Hence, data from all three groups of students revealed rather high and comparable levels of internal-consistency reliability.

Additionally, factor analyses were conducted within each group to determine whether their factor structures for the SSA were similar. This is an important question, as comparisons on scale scores are only meaningful if similar factor structures characterize the groups. In a series of factor analyses, data from samples stratified by academic level (three groups: RC, EM, and LH), by ethnicity (three groups: Anglo, Black, and Chicano), and by gender (two groups: male and female) were factor analyzed. Across all forms of stratification, the four hypothesized factors were well identified. The results of the factor analyses, along with the reliability data described above, were reported by Little, Widaman, Farren, MacMillan, Hemsley, and MacMillan (1990).

Standardized reading and mathematics achievement test scores. To enable comparisons of levels of attitudes toward school with actual achievement, we gained access to students' school files from all of the eighth-grade students. Test scores were obtained by mandating an agreement with the school district to release school data.

Across the four school districts, standard scores from the Stanford Achievement Tests and the Comprehensive Tests of Basic Skills were used. Raw scores from each test were converted to standard scores, which were based on a normal curve with a mean of 100 and a standard deviation of 15. Standard scores were calculated using each student's raw scores (Crocker & Algina, 1986) and have a mean of 50 and a standard deviation of 15.

### Analyses

The primary analysis in this study was an MANOVA (MANOVA: Academic Level x Ethnic Group). MANOVA examined the relationship between test scores and the two sets of variables. Also, in keeping with the main analysis, an ANOVA was performed on each main effect within each ethnic group to examine the effect of SES on standardized test scores. Lastly, a 2 × 3 × 2 analysis of variance was performed on each main effect within each ethnic group to examine the interaction between SES and ethnicity. This analysis included the three main effects as well as the eight possible two-way interactions. Significant two-way interactions were followed up using simple main effects as appropriate.

A priori null hypotheses were that the main effects were not significant. The main effect, the interaction of the main effect with SES, and the interaction of the main effect with the Ethnic Group x SES interaction were not significant (Anglo students, Black students, and Chicano students), whereas the main effect of SES was significant, in which the assumption of homogeneity of variance differences across subgroups was not met, and groups.
school files from which we obtained students' eighth-grade achievement test scores. These scores were derived from the annual, district-mandated achievement tests, which were administered approximately the same time as the school data were collected.

Across the four school districts, three different standardized achievement tests were used: the Stanford Achievement Test, the Comprehensive Test of Basic Skills, and the Three R's test. Reading and mathematics composite scores from each test were obtained in percentile form, which were converted into their corresponding normal curve equivalent (NCE) scores, so that scores would be on a comparable scale across tests (Crocker & Algina, 1986). (NCE scores have a mean of 50 and a standard deviation of 21.06 in the population.)

Analyses

The primary analyses of data from the present study were two multivariate analyses of variance (MANOVAs), each consisting of a 3 (Academic Level) x 3 (Ethnicity) x 2 (Gender) design. One MANOVA used the standardized achievement test scores as dependent variables, the other used the four attitude dimensions as dependent variables. When estimating the sums of squares for main and interaction effects, the analysis was performed in a hierarchical manner. That is, each main effect was estimated while partialing out the effects of other main effects; each two-way interaction had main effects and other two-way interactions partialled; and the three-way interaction had all main and two-way interaction effects partialled out (cf. Humphreys & Fleishman, 1974). Significant multivariate effects were followed up by investigating univariate results.

A priori contrasts were specified for two of the main effects. For the Academic Level main effect, the first a priori contrast compared the RC students with the low-achieving students (i.e., EM and LH students), the second contrast compared the EM students with the LH students. For the Ethnicity main effect, the first a priori contrast compared the Anglo students with the non-Anglo students (i.e., Black and Chicano students), while the second compared the Black students with the Chicano students. For cases in which the a priori contrasts failed to capture the differences among groups, Dunn’s test (Kirk, 1982) was used to represent differences among groups.

RESULTS

Standardized Achievement Scores

Academic Level main effect. The first MANOVA was based on reading and math achievement test scores. Here, the multivariate test of differences among students as a function of Academic Level was statistically significant, $F(4,1196)=108.02$, $p<.0001$. This overall test was followed up with multivariate tests of the two orthogonal contrasts of interest. The first contrast, comparing the RC students to the two groups of low-achieving students, was significant, $F(2,598)=254.95$, $p<.0001$. The second contrast, comparing the EM and LH students, was also significant, $F(2,598)=8.81$, $p<.0002$.

Turning to the univariate results, the difference in reading achievement scores between RC and the two low-achieving groups was significant, $F(1,599)=243.72$, $p<.0001$, and the difference in scores between the EM and LH groups was also significant, $F(1,599)=9.97$, $p<.002$. The mean reading achievement test scores fell in an easily interpretable trend, as the NCE scores on the reading achievement test were 53.30, 31.05, and 23.55, respectively, for the RC, EM, and LH groups.

A similar pattern of results was obtained on mathematics achievement test scores. The contrast between the RC and the two low-achieving groups was significant, $F(1,599)=463.98$, $p<.0001$, as was the contrast between the EM and LH groups, $F(1,599)=15.03$, $p<.0001$. As with reading achievement, the RC group ($M=64.68$) showed the highest level of math achievement, the EM group ($M=38.44$) a moderate level, and the LH group ($M=30.44$) the lowest level of math achievement.

Ethnicity main effect. The multivariate test of differences in academic achievement among the three ethnic groups was of borderline significance, $F(4,1196)=2.35$, $p=.06$. Specifically, Anglo and Black students had similar mean levels of achievement in reading (Anglo $M=41.40$; Black $M=41.83$) and math (Anglo $M=49.88$; Black $M=49.16$); both groups scored higher than did Chicano students (reading $M=38.06$; math $M=47.77$). These differences were confirmed via multivariate tests, showing a non-significant difference between Anglo and Black students, $F(2,598)=0.36$, $p>.65$, but a significant difference between the combined Anglo/Black group and Chicano students.
$F(2,598)=4.18$, $p<.02$. Univariate results on both reading and math achievement test scores also confirmed these differences, with nonsignificant differences between Anglo and Black students (both $ps>.50$), but significant differences between the combined Anglo/Black and Chicano students (both $ps<.05$).

Other effects. The gender main effect was nonsignificant, $F(2,598)=0.54$, ns, so univariate results were not considered. In addition, none of the three two-way interaction effects nor the three-way interaction was significant (all $ps>.10$). As a result, it was not necessary to qualify any of the patterns of mean differences in achievement on the preceding main effects. That is, RC students scored higher than EM students who, in turn, scored higher than LH students for each of the three ethnic groups and across males and females.

Survey of School Attitudes Data

Academic Level main effect. The MANOVA on school attitude scores used the four school attitude scales as dependent variables: mathematics, social studies, science, and reading/language attitudes. The multivariate test of differences among students as a function of Academic Level on these variables was statistically significant, $F(8,2250)=4.35$, $p<.0001$. This overall test was followed up with multivariate tests of the two orthogonal contrasts of interest. The first contrast, comparing the RC students to the two groups of low-achieving students, was significant, $F(4,1125)=7.03$, $p<.0001$. The second contrast, comparing the EM and LH students, was nonsignificant, $F(4,1125)=1.94$, $p>.10$.

Univariate results are presented in Table 2; both group means and results of the $a$ priori contrasts are shown. On the reading and social studies attitude scales, RC students scored significantly higher than did the EM and LH students ($p<.001$ for reading; $p<.004$ for social studies). On the other two scales (math and science), no differences were found ($ps>.15$). Further, EM and LH students differed nonsignificantly on three of the four school attitude dimensions (all $ps>.20$); the only exception was attitudes toward science ($p<.05$), where LH students expressed more favorable attitudes than did EM students.

This pattern of findings was supported by Dunn's test results. Significant differences ($p<.05$) were found between RC and EM on attitudes toward reading and social studies. In addition, RC and LH groups differed on attitudes toward reading. In all cases, the RC group expressed more favorable attitudes than did the contrasted group. Finally, a significant difference emerged on attitudes toward science; the RC students placed the highest mean scores on all four attitude scales. (See Table 2 for orthogonally contrasted means). As expected, the RC students obtained the highest mean scores on each of the four attitude scales, and the LH students obtained the lowest mean scores on all four scales.

These findings mirror the results, with all groups achieving significantly lower mean achievement scores on all four attitude scales for the four subjects and across sex groups. Black students significantly differed from the RC group ($p<.05$) on two scales. In all cases, the students with the more favorable attitudes did not reach significance on any scale.

Gender effect. The MANOVA on the attitude scales used the four school attitude scales as dependent variables: mathematics, social studies, science, and reading/language attitudes. The multivariate test of differences among students as a function of gender was nonsignificant, $F(8,2250)=2.18$, ns. This overall test was followed up with univariate tests of the two orthogonal contrasts of interest. The first contrast, comparing the male students to the two groups of female students, was significant, $F(4,1125)=3.67$, $p<.005$. The second contrast, comparing the EM and LH students, was nonsignificant, $F(4,1125)=1.74$, $p>.10$.

Univariate results are presented in Table 3; both group means and results of the $a$ priori contrasts are shown. On the reading and social studies attitude scales, male students scored significantly higher than did the EM and LH students ($p<.001$ for reading; $p<.004$ for social studies). On the other two scales (math and science), no differences were found ($ps>.15$). Further, EM and LH students differed nonsignificantly on three of the four school attitude dimensions (all $ps>.20$); the only exception was attitudes toward science ($p<.05$), where LH students expressed more favorable attitudes than did EM students.

This pattern of findings was supported by Dunn's test results. Significant differences ($p<.05$) were found between male and EM on attitudes toward reading and social studies. In addition, male and LH groups differed on attitudes toward reading. In all cases, the male group expressed more favorable attitudes than did the contrasted group. Finally, a significant difference emerged on attitudes toward science; the male students placed the highest mean scores on all four attitude scales. (See Table 3 for orthogonally contrasted means). As expected, the male students obtained the highest mean scores on each of the four attitude scales, and the LH students obtained the lowest mean scores on all four scales.

These findings mirror the results, with all groups achieving significantly lower mean achievement scores on all four attitude scales for the four subjects and across sex groups. Black students significantly differed from the male group ($p<.05$) on two scales. In all cases, the students with the more favorable attitudes did not reach significance on any scale.
Table 3
Means for School Attitude Scales by Ethnicity

<table>
<thead>
<tr>
<th>Variable</th>
<th>Ethnicity</th>
<th>Orthogonal Contrasts</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Anglo</td>
<td>Black</td>
</tr>
<tr>
<td>Read</td>
<td>2.06</td>
<td>2.21</td>
</tr>
<tr>
<td>Math</td>
<td>1.97</td>
<td>2.14</td>
</tr>
<tr>
<td>Social</td>
<td>2.21</td>
<td>2.28</td>
</tr>
<tr>
<td>Science</td>
<td>2.23</td>
<td>2.24</td>
</tr>
</tbody>
</table>

Note. Sample sizes are: Anglo = 604, Black = 193, and Chicano = 343. <sup>a</sup>Anglo contrasted with combined Black and Chicano group. <sup>b</sup>Black contrasted with Chicano.

Emerged between EM and LH subjects on attitudes toward science, with the LH group's attitudes being more favorable. Other contrasts failed to reach significance (p>.05).

Ethnicity main effect. The multivariate test of differences among the three ethnic groups on the four dimensions of school attitudes was statistically significant, F(8,2250)=3.83, p<.0002. (See Table 3 for group means and results of the à priori contrasts.) Orthogonal contrasts between the Anglo and the combined Black and Chicano samples were statistically significant for all four attitude subscales (all ps<.02). Somewhat unexpectedly, Anglo students had the lowest mean scores on each of the four school attitude scales, and Black and Chicano students had more favorable and approximately equal mean scores on all four scales.

These trends were supported by Dunn's test results, which showed that Anglo scored significantly lower than both Black and Chicano subjects on attitudes toward reading (p<.05). Anglo subjects also differed significantly (p<.05) from Black subjects on attitudes toward math, while differing significantly from Chicano subjects (p<.05) on attitudes toward social studies. In all cases, the Anglo subjects expressed less favorable attitudes. Remaining contrasts failed to reach significance (p>.05).

Gender main effect. The multivariate test of the gender main effect was significant, F(4,1125)=100.33, p<.0001. As shown in Table 4, female students held significantly more favorable attitudes toward reading than did male students, p<.001. Conversely, males' attitudes toward science were more favorable than those of females, p<.001. However, males and females did not differ significantly on the remaining two school attitude scales.

Academic Level x Ethnicity interaction. The multivariate test of the Academic Level x Ethnicity interaction on the four dimensions of school attitudes was statistically significant, F(16,3413)=1.65, p<.05. The univariate interaction for attitudes toward reading approached significance (F(4,1116)=2.35, p<.052. As shown in Figure 1, attitudes toward reading were uniformly high for Black students across the three ability groups. In fact, Black LH subjects' attitudes were higher than the mean score for any of the Anglo or Chicano ability groups. Anglo EM and LH subjects scored low on reading attitudes. Black EM and LH subjects scored at much higher levels than would be predicted from their academic achievement; Anglo EM subjects, conversely, scored much lower on attitudes toward reading than would be predicted from their achievement scores in reading. The significant interaction emerged as a result of the low-scoring Anglo EM students and the high
Table 4
Means for School Attitude Scales by Gender

<table>
<thead>
<tr>
<th>Variable</th>
<th>Female</th>
<th>Male</th>
<th>Gender Contrast</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>Read</td>
<td>2.27</td>
<td>0.38</td>
<td>1.99</td>
</tr>
<tr>
<td>Math</td>
<td>2.02</td>
<td>0.51</td>
<td>2.02</td>
</tr>
<tr>
<td>Social</td>
<td>2.23</td>
<td>0.40</td>
<td>2.26</td>
</tr>
<tr>
<td>Science</td>
<td>2.12</td>
<td>0.43</td>
<td>2.34</td>
</tr>
</tbody>
</table>

Note. M = mean. SD = Standard Deviation. Sample sizes are: Female = 457, Male = 683.

scoring Black EM and LH students.

The Academic Level x Ethnicity interaction on attitudes toward math was also significant, $F(4,1116)=2.90, p<.02$. This interaction, shown in Figure 2, reveals a pattern similar to that for the attitudes toward reading scale. Specifically, the Black subjects' attitude toward math scores were rather high for all three cate-

gories, but decreased at the highest level of achievement, whereas Anglo subjects maintained a fairly stable pattern, while Chicano scores decreased midway through the sample. In the case of EM and LH subjects, the EM group scored higher than the LH group on all three scores; the differences in attitude toward math were not significant, whereas the differences did tend to be predictable by ethnicity.

The univariate effects on the interactions of Ethnicity x Gender, Ethnicity x Academic Level, and Ethnicity x Ability are not considered adequately here.

Figure 1. Attitude toward reading among subjects by ethnicity and ability.

Other analyses performed show that the interaction of Academic Level x Ethnicity x Ability is not significant. As a result, univariate effects were not examined further. The test of the interaction of Ethnicity x Academic Level x Ability was not analyzed.
Figure 2. Attitude toward math among subjects by ethnicity and ability.

...categories, but the Black EM sample scored the highest of any group. Conversely, Anglo EM subjects had the poorest attitudes toward math, while Chicano EM subjects scored approximately midway between the RC sample and the LH sample. Interestingly, both Black and Anglo EM subjects revealed attitudes toward math that were not commensurate with their math achievement scores; that is, Black subjects scored higher on attitude toward math than would be predicted, whereas Anglo subjects scored lower than would be predicted.

The univariate Academic Level x Ethnicity interactions for attitudes toward social studies and science were nonsignificant; therefore, they were not considered further.

**Other effects**. The multivariate tests for Academic Level x Gender and for Gender x Ethnicity interactions were nonsignificant (ps > .20). As a result, univariate results for these interactions were not investigated further. The multivariate test of the three-way Academic Level x Gender x Ethnicity was significant, $F(16, 3401) = 1.91$, $p < .02$. Although one three-way interaction, for attitudes toward math, was statistically significant, we concluded that it was likely due to sampling fluctuation because (a) small sample sizes in certain cells resulted in unstable mean values, (b) the three-way interaction occurred only for one dependent variable, and (c) plots of mean values lacked clear interpretability.

**DISCUSSION**

The paucity of research on the noncognitive characteristics of mildly handicapped students is explained, in part, by the absence of scales of demonstrated reliability and validity for this population. Most scales are developed for use with general school populations. When they are administered to mildly handicapped students, their reliabilities are often substantially lower, which is to be expected when used with individuals at the extremes of distribution (Nunnally, 1976). Yet, internal-consistency estimates for the LH and EM samples in this study indicated that the four SSA school attitude scales were highly reliable.
(Little et al., 1990). Furthermore, the factor analysis of SSA data collected on the three samples yielded similar solutions for each sample (Little et al., 1990), permitting comparisons of mean scale differences between samples. On the basis of our findings vis-à-vis the SSA’s psychometric properties, we recommend the SSA as appropriate for assessing school attitudes in mildly handicapped populations.

**Gender**

The pattern of gender differences in school attitudes toward specific subject-matter areas was, in general, consistent with research findings regarding gender differences in achievement and motivation (Dweck, 1986; Tittle, 1986). In the present study, females expressed more favorable attitudes toward reading/language and less favorable attitudes toward science than did males. The direction of these differences is consistent with the generally reported findings of gender differences in achievement and attitudes toward these subject-matter areas. However, present findings were not consistent with prior findings concerning math. Whereas higher achievement and more favorable attitudes toward math by males are commonly reported, this pattern was not present in this investigation. Nevertheless, the consistency of the gender differences in this study with previous research was encouraging, as the SSA yielded data congruent with a substantial extant database on gender differences in attitudes toward specific educational content.

**Academic Level**

Differences in attitudes toward school between students differing in academic level (i.e., RC, EM, LH) revealed that RC students expressed more favorable attitudes toward reading and social studies than did EM and LH students, a finding that is consistent with differences in measured achievement. The only other significant difference in school attitudes emerged between LH and EM groups on attitudes toward science, with LH students expressing more favorable attitudes. Despite the differences between EM and LH groups on measured achievement in reading and math, corresponding differences in attitudes toward these subject-matter areas were not found. If the special education services for LH students are “protective” of these students by insulating them from undue frustration resulting from academic failure, one would predict that LH students would have more favorable attitudes toward all academic areas than EM students. This prediction derives from the situation experiences of EM students who are enrolled in regular classes and are confronted daily with their academic weaknesses as they compete for grades with students performing at higher levels than they. The prediction was largely disconfirmed, however. Whereas LH students expressed more favorable attitudes toward science, differences were not found between the LH and EM groups in attitudes toward other subject-matter areas.

The design of the present study precludes direct comparisons with results reported by Budoff and Gottlieb (1976) and Gottlieb and Budoff (1972). In the Budoff and Gottlieb studies, EMR students placed in special day classes were compared with EMR students integrated into regular classes and provided special services on a pull-out basis. In contrast, few of the students in either the LH or EM samples in the present study were placed in special day classes. Instead, the EM sample was fully integrated and, therefore, was not enrolled in special education, whereas the vast majority of the LH students were integrated into regular classes and served in resource specialist programs. As a result, the LH students received special services on a pull-out basis like Budoff and Gottlieb’s integrated samples. In contrast to Budoff and Gottlieb, who reported more favorable school attitudes by integrated EMR students, the present study found differences between LH and EM groups on only one of four school attitude dimensions (i.e., attitudes toward science). However, even the “failure to find” differences on reading and math attitudes was consistent with the finding that EM subjects scored significantly higher in both reading and math achievement. That is, despite significantly lower math and reading achievement, LH students’ attitudes toward these subjects were as favorable as those expressed by EM subjects.

**Ethnicity**

The specific ethnic group differences in attitudes were unexpected. Based on the general perception that public schools are more attuned to white, middle-class students, we anticipated more favorable attitudes toward school by Anglo students, if differences, in fact, were to be found. However, attitude scores for Black students were significantly higher than for Anglo students on reading and math subscales, and Chicano students expressed more favorable attitudes toward social studies.

Black students scored significantly higher in achievement.

In contrast, to attitudes, it was observed that Anglo subjects scored significantly higher in reading or math, science, and social studies attitudes and that the other white students scored at levels comparable to Anglo students. In contrast, Black students scored significantly higher than our other students for Black students. The comparison of the Anglo students toward reading and math achievement was not as strong as in the findings for Anglo students.

**Conclusion**

Consistent with findings in the literature, this study further supports the role of self-esteem and social factors in influencing student attitudes. The results of this study are consistent with prior investigations of the role of self-esteem and social factors in influencing student attitudes. The present study supports the notion that social factors play a significant role in influencing student attitudes.

For between-group comparisons, it is important to acknowledge the dynamics involved in these comparisons. It is possible that the higher achievement scores for Black students are due to their experience in a multicultural educational setting. If, as was suggested, this study compared the attitudes of Black and Anglo students, it is possible that the higher achievement scores for Black students are due to their exposure to a multicultural educational setting.
social studies than did Anglo students. Finally, Black students' attitudes toward reading were significantly higher than those of Chicano students.

In considering ethnic group differences in attitudes, it is important to recall that Black and Anglo subjects in this study did not differ on standardized achievement measures in either reading or math, although Black students generally score substantially lower than Anglo students on attitude and achievement tests (Tyler, 1965). In other words, the Black students in our sample scored at approximately the same level as the Anglo sample and, therefore, scored substantially higher than modal achievement levels reported for Black students in previous studies. Interpretation of the Anglo-Black differences in attitudes toward reading and math must consider the absence of significant differences in measured achievement between Black and Anglo subjects. The design of the study precludes us from propounding a single explanation with any certainty.

**Social Comparison Processes**

Consistent with Silon and Harter (1985), we assume that social comparison processes underlie self-evaluations, thereby providing a link to student attitudes. Consequently, we believe that these social comparisons may explain the results of this investigation.

Consider that students in certain minority groups are generally expected to achieve as a group at a lower level than majority-group students. Within each social comparison group (in this case, ethnic group), implicit social comparisons are hypothesized to occur, resulting in a within-group correspondence between measured achievement and favorableness of attitude toward school subjects. That is, for each ethnic group, we may suppose a significant positive correlation between, for example, achievement in and attitude toward math.

For between-group comparisons, however, the dynamics are more complex. We do not presume that Black or Anglo students compare their achievement level to national norms, but rather to benchmarks of achievement in their personal experience such as teacher marks in classes and grade point average in their immediate schools. If, as was the case in this study, Black students compare their academic performance to that of Anglo students and realize that they are doing as well as their Anglo peers, this comparative achievement level is incongruent with the generally expected comparison — that is, Anglo students will do better. Moreover, if a group of Black students perform at, or above, the standard achieved by Anglo students with whom they attend school, the Black students will interpret this as indicating that they compare favorably relative to their expected levels of achievement.

The sample of Black students in the present study achieved at the same level as Anglo students and, therefore, above the expected achievement level for Black students in general. As a result, they compare favorably to the standard expected for Black students, which is a level lower than that achieved by Anglo students, and, therefore, conclude that they are performing rather well. Anglo students in our sample, however, compare their achievement with the expected standard level for Anglo students (i.e., a level higher than that achieved by Black students) and conclude that they are performing below that level.

We postulate that the favorableness of the attitudes expressed toward a specific subject-matter area is based on comparisons to expected levels of achievement for each group — and not on comparisons to achievement-test norms or standards that are beyond the individual student's personal experience. Clearly, this explanation assumes that academic success affects the favorableness of attitude toward the subject-matter area in which the success is achieved.

Should subsequent research provide empirical support for this social-comparison process interpretation, the next task would be to establish how students of different ages identify the parameters of groups of "comparison students." This would entail examining the importance of gender, social class, ability group, formal grouping in the schools/classrooms, and other status variables as well as the role of socializing agents in defining for students those other students seen as constituting a comparison group.

The investigation reported here concerns the first wave of a sample that will be followed longitudinally. Follow-up assessments will permit us to examine the stability of attitudinal measures and their relationship to self-attitudes (Widaman, MacMillan, Hemsley, Little, & Balow, in press), standardized achievement test scores, and marks in academic courses. The stated aims to address attitudinal outcomes in educational programs coupled with the limited empirical work pub-
lished to date on these outcomes underscores the need for additional research on this topic.

Potential implications of this line of research might also be considered in the context of the high dropout rates reported for LD students (Wolman, Bruininks, & Thurlow, 1989). To date, little empirical evidence has been presented on the role of declining school attitudes as predictors of dropout. Instead, most of the research has examined only disability status (i.e., LD), grade retention, and academic history. The role of school attitudes as moderating variables linking status variables to dropping out seems a worthwhile line of investigation.

REFERENCES


FOOTNOTES
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