Differences in Adolescents’ Self-Concept As a Function of Academic Level, Ethnicity, and Gender

The relations of dimensions of self-concept of adolescents with their academic level, ethnicity, and gender were investigated. A self-concept inventory assessing 13 aspects of self-concept was administered to a sample of 1,440 eighth-grade students stratified with regard to academic level (regular class, educationally marginal, learning handicapped, ethnicity (white, black, and Hispanic), and gender. Results showed that regular class students had higher levels of self-concept on most scales than did students who were educationally marginal or learning handicapped; the latter two groups showed few differences. Black students had higher self-concept ratings than did white and Hispanic students on most scales. An interaction on two academically related dimensions of self-concept revealed that white students who were educationally marginal had the lowest level of academic and verbal self-concept. Implications of the results for theories of self-concept formation were discussed.

Whereas the domain of self-concept has assumed a central role in general personality theory, self-concept has received surprisingly scant empirical attention in the mental retardation field (Balla & Zigler, 1979). This is surprising because of the logical assumption that perceived intellectual limitations, repeated academic and social failure, and presumably stigmatizing experiences pervade the lives of people with mental retardation and would be assumed to impact attitudes about self in an adverse fashion. As Zigler and Hodapp (1986) noted:

A person’s self-concept has been viewed as heavily influenced by life experiences. Thus, one might expect that both perceived intellectual inadequacy and pervasive stigmatization of retarded persons would result in their having lower self-concepts than nonretarded individuals. (p. 135)

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The paucity of research on self-concept of persons with mental retardation and the lack of consistent findings across studies derives, at least in part, from serious problems in instrumentation. Balla and Zigler (1979) suggested that there are almost as many measures of self-concept as there are reported studies on this topic in the field of mental retardation. Hence, differences in findings across studies might be due to "instrument effects." Furthermore, Silon and Harter (1985) questioned the psychometric properties of many of the self-concept scales, stating that:

If we measuring instruments are not sensitive to the self-evaluations of pupils with deficits, then questions involving the impact of mainstreaming (or any programmatic/curricular directives for this population) cannot be meaningfully addressed. (p. 217)

Despite problems with measuring the dimensions comprising this domain, self-concept has been mentioned persistently as an important outcome to be evaluated when treatments are applied to persons with mental retardation. For example, studies concerned with the effects of alternate educational placements on self-concept have, at various times, contrasted children with low IQs attending regular classes with children having similar levels of IQ in special classes, leading to conflicting results. Thus, placement in regular classes has been found to have positive (Calhoun & Elliott, 1977; Meyerowitz, 1962), negative (Battle, 1979; Schurr, Towne, & Joiner, 1972), and no (Beck, Roblee, & Hanson, 1981; Mayer, 1966) effects on the self-concepts of learners with mild handicaps.

The Schurr et al. (1972) investigation assessed self-concept of ability before children were found eligible for special education services. Subsequently, a self-concept scale was administered to these same students several times throughout the following years while they were enrolled in special education classes. Scores indicated that students had more favorable self-concepts after being labeled and placed in special day classes than prior to their identification. Then, seven of these students returned to regular classes after delabeling, and they were tested prior to returning to regular classes and one year later. After one year in regular classes, these students exhibited significantly lower self-concepts. The pattern of results reported by Schurr et al. suggests that self-concept of ability emerges from each individual’s comparisons of his or her performance to that of classmates rather than his or her comparison to national norms or membership in a category (e.g., students in EMR programs).

Silon and Harter (1985) also examined self-concepts of subjects with mild mental retardation (chronological age [CA] = 9 to 12 years) in self-contained special classes and mainstreamed classes using the Perceived Competence Scale for Children. One aspect of the investigation addressed the comparison group used by students with mild mental retardation for establishing their perceived competence. Silon and Harter found no differences between self-evaluations of pupils with mental retardation in mainstreamed and self-contained classrooms. Based on the mean values for the two groups and the interview data, they concluded that mainstreamed pupils with mental retardation compared themselves to other mainstreamed pupils with mental retardation, whereas self-contained pupils' primary comparison group was composed of their peers in self-contained classes.

During the past 20 years, sentiment has favored nonlabeling of individuals with milder cases of mental retardation (MacMillan, 1990; Polloway & Smith, 1988). Moreover, the change in the definition of mental retardation (Grossman, 1983) to exclude the borderline category has resulted in students formerly eligible for EMR services being ineligible for special education services unless they can qualify as having learning disabilities. In states requiring a severe discrepancy between aptitude and achievement, however, students with IQs between 70 and 82 cannot qualify as either meeting the criteria defining mental retardation or learning disabilities (Forness, 1985) and find themselves "between a rock and a hard place." Academic performance for any special education refers to academic achievement of groups of students. An academic achievement refers to a contrast between low levels of learning handicap, achieving at rather lower levels, not so labeled.

In addition to effects on self-concept, we are aware of gender differences in self-concept in order to discuss prior findings. In recent years, Silon and his associates (Marsh, 1985, Marsh, Smith, Marston, 1985, Marsh, Smith, Marston, Bindi, 1986) have reported fairly consistent differences. Males tend to have higher scores on certain dimensions of self-concept, Math, Emotional, and Physical Appearance—higher scores on other dimensions, Honesty, Parental Relationship, Peer Relations, Peer Relations. Prior studies have reported positive differences in self-concept and the results of their scores. Most studies report scores of only two groups and subjects; sometimes we look at concept scores, sometimes just on mothers (Petersen, 1981). However, consistent findings from methodology are lacking, with little work on ethnic differences, performed using the same methods and well-constructed procedures that have recently been used.

Our second reason for gender and ethnic effects is whether the effects of self-concept interact with gender or with ethnic effects or both. A lack of scholastic aptitude effect for gender effects would represent a lack of academic on the generalized across ethnic.
prior to their identification. These students returned to delabeling, and they were going to regular classes and one year in regular classes, indicated significantly lower patterns of results reported suggest that self-concept of each individual's comparison performance to that of an his or her comparisons or membership in a category MR programs.

Rutter (1985) also examined subjects with mild mental age \(CA\) = 9 to 12 attained special classes and teachers using the Perceived Children. One aspect of the addressed the comparison between students with mild mental labeling their perceived and Harter found no differences evaluations of pupils with in mainstreamed and self-contained groups. Based on the mean in groups and the interview showed that mainstreamed pupils compared to mainstreamed pupils with behavioral problems, whereas self-contained comparison group was compared in self-contained classes.

Test 20 years, sentiment has increased among individuals with milder retardation (MacMillan, 1990; 1988). Moreover, the change in the mental retardation to exclude the borderline retarded in students formerly services being ineligible for services unless they have learning disabilities. In states discrepancy between aptitude, however, students 80 and 82 cannot qualify as criteria defining mental learning disabilities (Fones, themselves "between a rock and a hard place" academically, performing poorly in school due to low IQ, but ineligible for any special education services. As a result, it would be of interest to contrast the academic achievement and self-concept ratings by groups of students differing in levels of academic competence. Of particular concern is the contrast between students achieving at low levels and officially labeled as having learning handicaps and students also achieving at rather low levels but who are not so labeled.

In addition to effects of academic level on self-concept, we also investigated the effects of gender and ethnic differences in self-concept in order to replicate and extend prior findings. In recent studies of adolescents in junior and senior high school, Marsh and his associates (Marsh, Parker, & Barnes, 1985; Marsh, Smith, Marsh, & Owens, 1988) have reported fairly consistent gender differences: Males tend to have higher scores on certain dimensions of self-concept—General, Math, Emotional, Physical Abilities, and Physical Appearance—whereas females have higher scores on other dimensions—Verbal, Honesty, Parental Relations, and Same-Sex Peer Relations. Prior studies of ethnic differences in self-concept are far more mixed in their results. Most studies involved comparisons of only two groups—white and black subjects; sometimes whites had higher self-concept scores, sometimes blacks did (Petersen, 1981). However, the lack of consistent ethnic differences may have stemmed from methodological problems; relatively little work on ethnic differences has been performed using the highly differentiated and well-constructed self-concept inventories that have recently become available.

Our second reason for investigating gender and ethnic effects was to determine whether the effects of academic level on self-concept interact with either ethnic or gender effects or both. A lack of interaction of scholastic aptitude effects with ethnic and/or gender effects would imply that any effects of academic level on self-concept could be generalized across ethnic and gender groupings. This would be a desirable outcome, as investigations of the influences of academic level on self-concept could be pursued independently of gender and ethnic effects if neither of these latter effects moderate the influence of academic level. Conversely, presence of interactions would imply that the effects of academic level vary as a function of other effects (i.e., one's ethnic or gender group), so that an individual's gender or ethnic status must be considered when describing the effects of academic level on self-concept. Thus, the results of the present study will provide evidence on the generality of the effects of academic level across levels of ethnic and ethnic status.

Thus, the present study was designed to examine whether differences in self-concept exist between groups of eighth-grade students differing in scholastic aptitude or academic level. One group of primary interest was students with mild handicaps who received special education services and thereby were officially labeled by the school system as having educational problems. We contrasted the self-concept scores for the preceding group with two comparison samples: (a) students in regular programs who were not officially labeled in any way, but who were achieving at the lowest quartile and therefore probably encountering educational failure; and (b) students in regular programs who were achieving at adequate-to-superior levels. We also examined the relationship of self-concept scores to ethnic group membership and gender to replicate and extend prior findings with regard to ethnic and gender effects on self-concept and to determine whether academic level effects on self-concept interacted with either ethnic or gender effects or both.

**Method**

**Subjects**

Subjects were selected from eighth-grade classes in four large school districts in Southern California. Three student groups
differing in academic level were created: learning handicapped, educationally marginal, and regular class students. Learning handicapped is a California special education program category that subsumes children who, in other states, might be labeled as having mild mental retardation, learning disabilities, behavior disorders, or neurodevelopmental impairments. Learning handicapped is defined in the California Education Code (Cal Ed Code & 56600, 1980) to include 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 children served as learning handicapped receive services in resource specialist programs or special day classes for students with learning handicaps, depending on their degree of disability.

The second group of students, those labeled as educationally marginal, was identified based on their seventh-grade achievement test scores. Students who scored in the first quartile on either reading or math subtests were designated as educationally marginal. The third group, regular class students, was selected from students in the regular program who scored in the second quartile or higher in both reading and math on their seventh-grade achievement tests.

Lists were created for each of the three student groups differing in academic level that were just described, and these lists were then stratified by ethnic group (white, black, Hispanic) and gender. Stratified random-sampling procedures were employed to select cases from lists, and consent letters were sent to the parents of students selected. This procedure resulted in a total sample of 1,140 subjects. The breakdown of the sample by academic level, gender, and ethnicity is shown in Table 1.

<table>
<thead>
<tr>
<th>Sample</th>
<th>Regular class (n = 531)</th>
<th>Educationally marginal (n = 363)</th>
<th>Learning handicapped (n = 240)</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
<td>Hispanic Females</td>
<td>20</td>
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<td>74</td>
</tr>
</tbody>
</table>

**Instruments**

**Self-Concept Inventory.** Self-concept was assessed with the Self Description Questionnaire II (Marsh & Barnes, 1982), which is based on the theoretical work of Shavelson, Hubner, and Stanton (1976). In this framework, self-concept is conceptualized as multidimensional and hierarchically organized. Moreover, Shavelson et al. (1976) reasoned that, during the course of development, self-concept becomes increasingly stable and differentiated. The Self Description Questionnaire II was one of three self-concept scales developed by Marsh—the Self Description Questionnaire for preadolescents, the Self Description Questionnaire for early adolescents, and the Self Description Questionnaire III for late adolescents.

The Self Description Questionnaire II consists of 140 simple descriptive statements to which the respondent indicates agreement—disagreement on a 6-point Likert scale, varying from 1, false to 6, true. The inventory measures 11 components of adolescent self-concept: General, Math, Verbal, Academic, Honesty, Parents, Emotions, Physical (i.e., physical abilities), Appearance, Same Sex, and Opposite Sex. Factor analyses have confirmed these as comprising independent factors. Marsh et al. (1985) reported that factor analysis clearly identified each of the 11 scales; each scale was reliable, median \( r = .86 \), and the correlation matrix of the Description Questionnaire II subscales is small, median \( r = .17 \). They demonstrated the empirical validation of the three factors found in the Self Description Questionnaire II, a multivariate/multimethod approach.

The Self Description Questionnaire II was administered to all students, in groups of 10, during the spring of the ninth grade. Each of the items was followed by one of six responses (true, more false than true, false, more true than false, sometimes true, and true). The questionnaire took about 20 minutes for each group to complete.

Preliminary analysis of data from the present study using the psychometric properties of the Self Description Questionnaire II revealed that across all 1,140 students, the internal consistency reliability for the 11 self-concept scales was high, ranging from .800 to .899, with a mean of .854. For the 531 regular class students, the alphas for the scales ranged from .710 to .865, with a median of .856. For students who were educationally marginal, the alphas ranged from .684 to .816, with a median of .849, and for students who were learning handicapped, coefficients ranged from .749 to .877, with a median of .849. Hence, data from the regular class students, educationally marginal, and comparable levels of reliability, whereas data from learning handicapped had quite acceptable levels of reliability.

In addition, factor analyses were conducted within each group to determine whether there were subgroups for the self-concept in terms of the 11 important question, as all factor scores are meaningful. Factor structures characterize the item profiles. Pairs of parcels of items were determined using the approach of McDonald et al. (1985).
Characteristics of Sample

<table>
<thead>
<tr>
<th>Academic level (n=531)</th>
<th>Educationally marginal (n=363)</th>
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<tbody>
<tr>
<td>7</td>
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</table>

Inventory: Self-concept was conceptualized as multifaceted, hierarchically organized. Shavelson et al. (1976) reasoned that self-concept is increasingly stable and that the Self Description Questionnaire (SDQ) was an appropriate measure. The SDQ is comprised of three self-concept scales: self-worth, self-efficiency, and self-concept. The SDQ was administered to all students at the school sites in groups of approximately 30 students, during the spring of their eighth-grade year. Each of the items was read aloud twice to the students, who were instructed to select one of six responses (false, sometimes false, more false than true, more true than false, sometimes true, and true). Administration of the questionnaire took approximately 35 minutes for each group of 30 students.

Preliminary analyses were performed on data from the present study to investigate the psychometric properties of the Self Description Questionnaire II scales in our sample. Across all 1,140 students, coefficient alpha internal consistency reliabilities for the 11 self-concept scales were quite high, ranging from .800 to .899, with a median of .856. For the 531 regular class students, coefficient alphas ranged from .811 to .906, with a median of .856; for the 363 students who were educationally marginal, coefficient alphas ranged from .800 to .893, with a median of .849; and for the 240 students with learning handicaps, coefficient alphas ranged from .749 to .877, with a median of .777. Hence, data from the regular class and educationally marginal groups revealed rather high and comparable levels of internal consistency reliability, whereas data from the students with learning handicaps had slightly lower, but still quite acceptable, levels of reliability.

In addition, factor analyses were conducted within each group to determine whether groups had similar factor structures for the self-concept inventory. This is an important question, as comparisons on scale scores are meaningful only if similar factor structures characterize the groups. First, three parcels of items were developed for each of the Self Description Questionnaire dimensions. Each parcel consisted of the sum of scores on two or more items for the given dimension, each item for the dimension was assigned to only one of the three parcels for that dimension, and all items for a given dimension were assigned to one or another of the three parcels for that dimension. Then, all factor analyses were performed on intercorrelations of parcel scores. In a series of factor analyses, data from samples stratified by academic level (three groups: regular class, educationally marginal, and learning handicapped), by ethnicity (three groups: white, black, and Hispanic), and by gender (two groups: male and female) were factor analyzed. Across all forms of stratification, the hypothesized factors were well identified. The results of the factor analyses, along with the reliability results described previously, were reported by Little, Widaman, Farron, MacMillan, Hemsley, and MacMillan (1990).

Standardized Reading and Mathematics Achievement Test Scores. To enable comparisons of levels of academically related self-concept with actual achievement, we gained access to students’ school files, from which we obtained students’ eighth-grade achievement test scores. These test scores were derived from the annual, district-mandated achievement tests, which were administered at approximately the same time as the self-concept data were collected. Across the four school districts, three different standardized achievement tests were used. The three tests were the Stanford Achievement Test, the Comprehensive Test of Basic Skills, and the Three R’s test. We obtained only the reading and mathematics composite scores from each test. We then converted percentile scores from each test into their corresponding normal curve equivalent scores, so that scores would be on a comparable scale across tests (Crocker & Algina, 1986). Normal curve equivalent scores have a mean of 50 and standard deviation (SD) of 21 in the population.
analyses

The primary analyses of data from the present study consisted of three multivariate analyses of variance. Each multivariate analysis of variance consisted of a 3 (academic level) x 3 (ethnicity) x 2 (gender) design. All analyses were performed using the SAS package of computer programs (SAS Institute, 1985). The approximate $F$ ratios reported in text for testing multivariate hypotheses were based on the Wilks' lambda criterion, although all four major criteria (i.e., Wilks' lambda, Pillai's trace, Roy's maximum root, and Hotelling-Lawley trace) led to identical decisions regarding statistical significance of effects. One multivariate analysis of variance used the two standardized achievement test scores as dependent variables, the second used the four academically related dimensions of self-concept as dependent variables, and the third multivariate analysis of variance used the seven nonacademically related dimensions of self-concept as dependent variables.

When estimating the sums of squares for main and interaction effects, we performed the analysis in a hierarchical manner. That is, each main effect was estimated while partiailling out the effects of other main effects, each two-way interaction had main effects and other two-way interactions partialled out, and the three-way interaction had all main and two-way interaction effects partialled out (cf. Humphreys & Fleishman, 1974). Our analytic approach is consistent with recommendations by Cohen and Cohen (1983) with regard to setwise analyses, where main effects, two-way interactions, and three-way interactions are considered sets of predictor variables. We assumed that the main effects of academic level, ethnicity, and gender were likely effects in our design, given previous research on these variables. The three two-way interactions and the three-way interaction of these research factors were considered unlikely or at least less likely than the main effects, but we tested these to determine whether they were present. Finally, at each stage of the analysis, we estimated only partialled effects of each predictor as described previously, a highly recommended, conservative procedure. Using other analytic strategies (e.g., partiailling out all other effects—main effects and interactions—when estimating the effect of a given main or interaction effect) led to substantively identical patterns of results.

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 regular class students with the low-achieving students (i.e., educationally marginal improved handicapped groups), whereas the second contrast compared the students who were educationally marginal with the students with learning handicaps. For the ethnicity main effect, the first a priori contrast compared the white students with the nonwhite students (i.e., black and Hispanic students), and the second compared the black students with the Hispanic 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 test scores

Academic Level Main Effect. The first multivariate analysis of variance was based on reading and math achievement test scores. Here, the multivariate test of differences between the three categories of students was statistically significant, approximate $F(4, 1206) = 108.49, p < .0001$. This overall test was followed up with multivariate tests of the two orthogonal contrasts of interest. The first contrast, comparing the regular class students to the two groups of low-achieving students, was significant, approximate $F(2, 605) = 255.84, p < .0001$. The second contrast, comparing the students who were educationally marginal against the learning handicapped, was significant, approximate $F(2, 605) = 10.76, p < .0001$.

The univariate results indicated a significant difference in reading and math achievement test scores between regular class and low-achieving groups, $F(1, 606) = 46.47, p < .0001$, and the differences were larger for the educationally marginal handicapped groups ($F(1, 604) = 10.76, p < .0001$). Math achievement test scores showed an interpretable trend, the educationally marginal, and handicapped groups had mean math achievement test scores of 53.8, 50.7, and 38.4, respectively, on the reading test.

A similar pattern of results was noted on mathematics achievement test scores, with a significant contrast between the regular class and the two low-achieving groups: $F(1, 604) = 38.44, p < .0001$. A contrast between the educationally marginal handicapped group and the learning handicapped group was not statistically significant, $F(1, 604) = .16, p = .69$. As we would have predicted, the regular class students showed the highest level of achievement, the educationally marginal handicapped students scored the second highest level of math achievement, and the learning handicapped group scored the lowest level of math achievement.

Ethnicity Main Effect. The test of differences between groups in academic achievement (i.e., reading and math achievement tests) yielded similar results. Black students had statistically higher achievement in reading (mean = 41.83, respectively) and math (mean = 49.16, respectively) than white students. Black groups scored higher in both math and reading achievement than Hispanic students (reading mean = 47.77). These differences were significant via multivariate test, but the significant difference between white and black students. The multivariate test of differences between Hispanic and white students was not statistically significant, $F(4, 1206) = 2.23, p < .06$.

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stage of the analysis, we partialled effects of each of the variables described previously, a highly conservative procedure. Univariate strategies (e.g., partialling out main effects and inter-}


tacting the effect of an interaction) led to sub-


tantially marginal against the students with learning handicaps, was also significant, approximate $F(2, 603) = 9.30, p = .0001$.

The univariate results revealed a significant difference in reading achievement scores between regular class and the two low-achieving groups, $F(1, 604) = 246.35, p < .0001$, and the difference in scores between the educationally marginal and learning handicapped groups was also significant, $F(1, 604) = 10.76, p < .001$. The mean reading achievement test scores fell in an easily interpretable trend, as the regular class, educationally marginal, and learning handicapped groups had mean normal curve equivalent scores of 53.30, 31.05, and 23.55, respectively, on the reading achievement test.

A similar pattern of results was obtained on mathematics achievement test scores. The contrast between the regular class and the two low-achieving groups was significant, $F(1, 604) = 464.73, p < .0001$, as was the contrast between the educationally marginal and learning handicapped groups, $F(1, 604) = 15.69, p < .0001$. As with reading achievement, the regular class group (mean = 64.68) showed the highest level of math achievement, the educationally marginal group (mean = 38.44), a moderate level; and the learning handicapped group (mean = 30.44), the lowest level of math achievement.

**Ethnicity Main Effect.** The multivariate test of differences between the three ethnic groups in academic achievement was of borderline significance, approximate $F(4, 1206) = 2.23, p < .06$. The mean scores on the achievement tests revealed that white and black students had similar mean levels of achievement in reading (means = 41.40 and 41.83, respectively) and math (means = 49.88 and 49.16, respectively), although both groups scored higher than did Hispanic students (reading mean = 38.06, math mean = 47.77). These differences were confirmed via multivariate test, with a nonsignificant difference between white and black students but a significant difference between the combined white/black group and Hispanic students, approximate $F(2, 603) = 3.37, p < .01$. Univariate results on both reading and math achievement test scores also confirmed these differences, with nonsignificant differences between white and black students, but significant differences between the combined white/black and Hispanic students, both $ps < .05$.

**Other Effects.** The gender main effect was nonsignificant, so univariate results were not considered. In addition, none of the three two-way interaction effects nor the three-way interaction was significant. 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, regular class students scored higher than students who were educationally marginal, who in turn scored higher than students with learning handicaps for each of the three ethnic groups and across males and females.

**Academic Self-Concept Scales**

**Academic Level Main Effect.** The multivariate analysis of variance on academically related self-concept scores used four self-concept scales as dependent variables: General, Academic, Verbal, and Math self-concept. The multivariate test of differences between the three categories of students on these variables was statistically significant, approximate $F(8, 2262) = 33.84, p < .0001$. This overall test was followed up with multivariate tests of the two orthogonal contrasts of interest. The first contrast, comparing the regular class students to the two groups of low-achieving students, was significant, approximate $F(4, 1131) = 71.19, p < .0001$. The second contrast, comparing the students who were educationally marginal and students with learning handicaps, was nonsignificant.

Univariate results are presented in the top of Table 2, both group means and results of the a priori contrasts are shown. On each of the four academically related dimensions of self-concept, regular class students scored
significantly higher than did the students who were educationally marginal and those with learning handicaps, all \( p < .0001 \). Further, students who were educationally marginal and students with learning handicaps differed nonsignificantly on each of these four dimensions of self-concept.

**Ethnicity Main Effect.** The multivariate test of differences between the three ethnic groups on academically related self-concept scales was statistically significant, approximate \( F(8, 2262) = 5.90, p < .0001 \). Group means and results of the a priori contrasts are presented in the top half of Table 3. Although certain a priori contrasts revealed significant differences between groups (see Table 3), the a priori contrasts failed to represent the patterns of mean differences among the three ethnic groups. Somewhat unexpectedly, black students had the highest mean scores on each of the four academically related dimensions of self-concept, and white and Hispanic students had lower and approximately equal levels of self-concept on all four scales. These trends were supported by Dunn's test results, which showed that white and Hispanic students differed nonsignificantly on all four of the scales and that black students had significantly higher self-concept scores than did white and Hispanic students on all four dimensions of academically related self-concept, all \( p < .01 \).

**Gender Main Effect.** The multivariate test of the gender main effect was significant, approximate \( F(4, 1131) = 15.32, p < .0001 \). The univariate test results and group means are presented in the top half of Table 4. As shown in this table, male students had significantly higher levels of General self-concept than did female students, \( p < .0001 \), but female students had significantly higher levels of Verbal self-concept than did males, \( p < .01 \). Males and females did not differ significantly on the remaining two academically related self-concept scales.

**Academic Level x Ethnicity Interaction.** The multivariate test of the Academic Level x Ethnicity interaction on academically related self-concept was statistically significant, approximate \( F(16, 3431) = 2.61, p < .0003 \). Two of the four univariate interactions were also significant. The first of these, a significant interaction, was on the Academic self-concept scale, \( F(4, 1126) = 5.10, p < .0004 \), depicted in Figure 1. As indicated by these results, the trends in Academic self-concept scores for black and Hispanic students did not mirror the levels of achievement of white students having the highest academic level.
...four of the scales and that they had significantly higher self-concepts than did white and Hispanic students on four dimensions of academic self-concept, all ps < .01.

Main Effect. The multivariate main effect was significant, Pillai's Trace (3, 1131) = 15.32, p < .0001. The test results and group means are presented in the top half of Table 4. As indicated in the table, male students had significantly higher self-concept than did females, and males did not differ from the remaining two academic self-concept scales.

Level x Ethnicity Interaction. The test of the Academic Level x Ethnicity interaction on academically related self-concept was statistically significant, approximated Pillai's Trace (1131) = 2.61, p < .0003. Two multivariate interactions were also significant. First, these significant interactions on the Academic self-concept scale (for Academic Level: 1126) = 5.10, p < .0004, depicted in Figure 1. As shown in this figure, the trends in Academic self-concept for the black and Hispanic students parallel their levels of achievement, with regular class students having the highest levels of Academic self-concept, students with learning handicaps the lowest levels, and students who were educationally marginal scoring about midway between the regular and those with learning handicaps. A comparable pattern was shown for regular class and learning handicapped white students, with regular class students scoring at much higher levels than did students with learning handicaps. But white students who were educationally marginal scored at relatively much lower levels than would be predicted from their levels of academic achievement, scoring below white students with learning handicaps rather than midway between regular class students and those with learning handicaps. In fact, the significant interaction arose solely from the decided low scores for the white students who were educationally marginal.

The Academic Level x Ethnicity interaction on the Verbal self-concept scale was also significant, Pillai's Trace (1126) = 2.51, p < .04. This interaction is shown in Figure 2 and reveals a pattern almost identical to that for the Academic self-concept scale. That is, for all three ethnic groups, regular class students scored rather high, and students with learn-

<table>
<thead>
<tr>
<th>Table 3</th>
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<td>Means and SDs on Self-Concept Scales by Ethnicity</td>
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<td><strong>Orthogonal contrasts</strong></td>
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| **Scales/Variables** | | | |
| --- | --- | --- |
| Academic self-concept scales | | |
| General | 4.86 | 0.79 | 5.21 | 0.76 | 4.75 | 0.84 |
| Verbal | 3.78 | 1.06 | 4.24 | 0.96 | 3.70 | 1.04 |
| Math | 3.66 | 1.44 | 3.92 | 1.44 | 3.66 | 1.40 |
| Nonacademic self-concept scales | | |
| Honesty | 4.26 | 0.95 | 4.13 | 0.87 | 4.10 | 0.98 |
| Emotion | 4.12 | 0.89 | 4.32 | 0.88 | 4.07 | 0.85 |
| Parental involvement | 4.42 | 1.14 | 4.59 | 1.15 | 4.47 | 1.09 |
| Physical | 4.61 | 1.07 | 5.01 | 0.84 | 4.59 | 1.01 |
| Appearance | 3.91 | 1.12 | 4.44 | 1.01 | 3.80 | 1.11 |
| Same Sex | 4.73 | 0.87 | 5.03 | 0.81 | 4.81 | 0.77 |
| Opposite Sex | 4.38 | 1.07 | 4.82 | 0.94 | 4.38 | 0.97 |

Note Sample sizes: White, n = 603; Black, n = 190; Hispanic, n = 341.

*Black contrasted with white and Hispanic combined. **Black contrasted with Hispanic, holding white constant. p < .05. ***p < .01. ****p < .001.

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Note Sample sizes: Female, n = 554; Male, n = 680. *p < .01. **p < .001.
ing handicaps had rather low means. For the black and Hispanic groups, the students who were educationally marginal fell about midway between regular class and learning handicapped groups. In contrast, the white students who were educationally marginal had relatively much lower levels of Verbal self-concept than would be predicted by their levels of achievement.

**Other Effects.** The multivariate tests on academically related self-concept scales for the remaining seven self-concept scales as dependent variables, specifically the Honesty, Emotions, Parents, Physical, Appearance, Same Sex Relations, and Opposite Sex Relations scales. The multivariate test of differences between the three categories of students on these variables was statistically significant, approximate \( F(14, 2256) = 6.43 \), \( p < .0001 \). This overall test was followed up with multivariate tests of the two orthogonal contrasts of interest. The first contrast, comparing the regular class students to the two groups of low-achieving students, was significant, approximate \( F(7, 1128) = 9.55, p < .0001 \); the second contrast, comparing the students who were educationally marginal and students with learning handicaps, was also significant, approximate \( F(7, 1128) = 3.28, p < .0004 \).

Univariate results, both group means and results of the a priori contrasts, are presented in the bottom of Table 2. These results revealed that the a priori contrasts captured the differences among the groups rather well. That is, the regular class students had significantly higher scores than did the students who were educationally marginal and students with learning handicaps on five of the seven scales (i.e., Honesty, Emotions, Physical, Appearance, and Opposite Sex Relations), and the students who were educationally marginal and those with learning handicaps differed nonsignificantly on these five scales.

On a sixth nonacademic scale, Same Sex Relations, students who were educationally marginal had a higher level of self-concept than did the regular class students and those with learning handicaps, Dunn's test, \( p < .01 \), and regular class students and students with learning handicaps did not differ significantly. On the seventh scale, parents, no significant differences were found.

**Ethnicity Main Effect.**

The test of differences between the groups on the nonacademic concept scales was statistically significant, approximate \( F(14, 2256) \). Group means and results of the a priori contrasts are presented in Table 3. As with ethnicity, the socially related scales, the group means among ethnic groups fail to reveal a general pattern of differences among the three ethnic groups on the socially related dimensions of scores. As with ethnicity, the Honesty scale were the only scales on which significant differences were found: white students had higher mean scores on the Honesty scale than black and Hispanic students, with \( p < .001 \), and black and Hispanic students did not differ significantly.

In contrast, black students had lower means scores on the nonacademically related scales, the Self-concept, and white and Hispanic students had lower and approximately equal means scores on all six scales. Univariate results were supported by Dunn's test, which showed that white and Hispanic students did not differ significantly on the Self-concept scale and that black students had notably higher self-concept scores than did white and Hispanic students, all \( ps < .01 \). On the six nonacademic scales, no significant differences were found.

**Gender Main Effect.**

The test of the gender by nonacademic related self-concept was significant, approximate \( F(14, 1128) = 41.64, p < .0001 \), with group means and results of the a priori contrasts presented in the bottom half of Table 4. Female students had significantly higher scores of self-concept than did male students on five of the seven scales: Honesty, Emotions, Physical, Appearance, and Opposite Sex Relations, all \( ps < .0001 \), where \( p \) was less than .0001.
Parents, no significant differences among groups were found.

**Ethnicity Main Effect.** The multivariate test of differences between the three ethnic groups on the nonacademically related self-concept scales was statistically significant, approximate $F(14, 2256) = 5.61, p < .0001$. Group means and results of the a priori contrasts are presented in the bottom of Table 3. As with ethnicity effects on academically related scales, the a priori contrasts among ethnic groups failed to represent the general pattern of differences among the three ethnic groups on the nonacademically related dimensions of self-concept. Only for the honesty scale were the a priori contrasts confirmed; white students had significantly higher mean scores on the honesty scale, $p < .001$, and black and Hispanic students did not differ significantly.

In contrast, black students had the highest mean scores on each of the six remaining nonacademically related dimensions of self-concept, and white and Hispanic students had lower and approximately equal levels of self-concept on all six scales. These trends were supported by Dunn’s tests results, which showed that white and Hispanic students did not differ significantly on all six of the scales and that black students had significantly higher self-concept scores than did white and Hispanic students on five of the scales, all $p < .01$. On the sixth scale, Parents, no significant differences among ethnic groups were found.

**Gender Main Effect.** The multivariate test of the gender main effect on nonacademically related dimensions of self-concept was significant, approximate $F(7, 1128) = 41.64, p < .0001$. The univariate test results and group means are presented in the bottom half of Table 4. As shown in Table 4, male students had significantly higher levels of self-concept than did female students on five of the seven scales—Emotions, Parents, Physical, Appearance, and Opposite Sex Relations, all $p < .0001$, except for Parents, where $p$ was less than .005. Female students had significantly higher levels of self-concept than did males on Honesty and Same Sex Relations, $p < .0001$.

**Other Effects.** The multivariate tests for the three two-way interaction effects on the nonacademically related self-concept scales were nonsignificant as was the multivariate test of the three-way interaction. As a result, univariate results for these interaction effects were not investigated further.

**Discussion**

In light of the problems encountered to date with self-concept scales when used with students who have mild handicaps, the findings from the present study were extremely encouraging with regard to the psychometric properties of the Self Description Questionnaire II. Scales developed for general populations are often found to have substantially lower reliabilities than generally reported when used with individuals at extremes of a distribution (Nunnally, 1976). Yet, internal consistency estimates for our learning handicapped and educationally marginal samples indicated that academic and nonacademic self-concept subscales were highly reliable for all of our groups (Little et al., 1990). Another problem encountered by Silon and Harter (1985), using the Perceived Competence Scale, was that the four-factor solution found with students who did not have handicaps could not be duplicated for subjects with mild mental retardation, as only two factors were obtainable for this group. The factor analysis of Self Description Questionnaire II data collected on our three samples yielded similar solutions for each of the samples (Little et al., 1990), permitting comparisons of mean scale differences between samples. Possibly the fact that our sample was older than that of Silon and Harter explains the different factor analytic outcomes in their study and the present one. Regardless, on the basis of the findings vis-a-vis the psychometric properties of the Self Description Questionnaire II, we encourage those interested in assessing self-concept in

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mildly handicapped populations to consider the Self Description Questionnaire II in research/evaluation endeavors.

Differences in academically related dimensions of self-concept between students at different academic levels (i.e., regular class, educationally marginal, learning handicapped) were, in general, consistent with measured achievement. That is, regular class students differed markedly in measured achievement from students who were educationally marginal and those with learning handicaps, and there were significant but small, differences between educationally marginal and learning handicapped samples. In contrast, the nonacademic dimensions of self-concept were less consistent with the achievement pattern. That is, regular class students had significantly higher levels of academically related self-concept. However, despite their differences in measured achievement, educationally marginal and students with learning handicaps did not differ significantly on these dimensions of self-concept.

A plausible explanation for this pattern of findings derives from the theory of social comparison processes that was proposed by Festinger (1950, 1954) and extended to the field of mental retardation by Guskin (1963). Festinger postulated that an important determinant of group behavior is the individual's striving for self-evaluation. That is, persons seek out groups containing individuals comparable to themselves, comparing oneself to such groups of persons on particular dimensions of individual difference thereby permits accurate self-evaluations on those dimensions. In his analysis of research on persons with mental retardation, Guskin invoked the Festinger theory to explain how groups react to deviant members (e.g., persons with mental retardation). Research on self-concept of subjects with mild mental retardation by Schurr et al. (1972) and Silon and Harter (1985) suggests that self-evaluations of children with mental retardation are based on "social comparisons" with comparable children. Recall that Silon and Harter reported that mainstreamed children with mild mental retardation defined the comparable children as other mainstreamed children with mental retardation—not all children in the regular class into which they were mainstreamed. Children with mild mental retardation in self-contained classes defined the comparable children as their special class classmates. In the Schurr et al. study, the self-concepts of the children with mild mental retardation vacillated as a function of the students who they target students shared a classroom. That is, when in self-contained educationally marginal classes, the target students apparently compared their performance with that of other special class students. But the self-concept of ability scores of the seven students returned to regular programs dropped when they compared their performance with other students in regular class programs.

Moreover, such social comparison processes are often invoked to explain the relations between academic achievement and academically related dimensions of self-concept in current research on normally achieving students. For example, Marsh, Byrne, and Shavelson (1988) argued that students engage in both external and internal comparisons when forming self-concepts of verbal and mathematical competence. The external comparisons involve contrasting one's own levels of perceived competence, based perhaps on course examination scores and course grades, among other sources of information, with those of other students. The internal comparisons concern the contrast between one's own level of verbal competence with one's mathematical competence. Marsh et al. presented evidence that was consistent with this external–internal comparison model for the formation of self-concepts of verbal and mathematical competence. The external comparison component of the external–internal comparison model discussed by Marsh et al. may be particularly salient for students in junior high school, high school, and early college, as Sul's and Mullen (1982) presented evidence that the importance of external social comparisons with similar others peaks during the adolescent years.

However, when using social comparisons, students at different levels of performance may rate others in levels of performance that are not all other students in the same class as in school, as assumed by comparisons based on social comparisons. For example, Miller, Turnbull, and Wu demonstrated that externality may take either of two particularistic comparisons, in which comparisons is the performance of others with similar performance-relevant attributes, or a particularistic comparison, in which comparisons is the performance of persons with whom one shares identity or bond. For example, one might evaluate an evaluation of skills by comparing one's own perceived performance that of others with similar performance-relevant attribute, would be a particularistic comparison. On the other hand, comparing one's own performance to that of a friend would constitute a particularistic comparison. Miller et al. (1965) evidence that adolescents differ in the way they make particularistic comparisons. In a universalistic comparison, the comparison between the two sides of the same achievement situation (i.e., the same class or grade within the same group or a student group if a student group is used as a comparison, whereas persons who are in the student's own performance level are involved in the comparison of others with whom they have a bond or shared identity (e.g., ethnicity).

Such social comparisons explain the patterns observed deviant's by the students differing....
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However, when making external social comparisons, students may not compare their levels of performance with performance of all other students in the same class or grade in school, as assumed in much research based on social comparison theory. Recently, Miller, Turnbull, and McFarland (1988) demonstrated that external social comparisons may take either of two forms: (a) universalistic comparisons, in which a person evaluates his or her performance against that of all other persons with similar standing on performance-relevant attributes, and (b) particularistic comparisons, in which a person compares his or her performance against that of persons with whom the person feels a shared identity or bond. Hence, in arriving at an evaluation of skill in playing a game, comparing one's own performance against that of others with similar practice on the game, where practice is a performance relevant attribute, would constitute a universalistic comparison. On the other hand, comparing one's own performance to that of a friend would constitute a particularistic comparison. Miller et al. (1988) provided evidence that adolescents appear to prefer to make particularistic comparisons, rather than universalistic comparisons, when a choice between the two is available. In school achievement situations, all students in the same class or grade would be the comparison group if a student made a universalistic comparison, whereas particularistic comparisons would involve comparisons of the student's own performance only with performance of others with whom the student felt a bond or shared identity (e.g., friend, same ethnicity).

Such social comparison processes could explain the patterns of self-concept shown by the students differing by academic level. If one assumes that students compare their levels of academic achievement to the performance of the other students in class, then regular class students compare rather favorably and should, in fact, exhibit academically related self-concept scores that are significantly higher than educationally marginal students and those with learning handicaps; we observed this outcome in the present study. Students with learning handicaps, most of whom were mainstreamed but had the lowest levels of measured achievement, had correspondingly low academically related self-concept scores, again consistent with the social comparison explanation; but students who were educationally marginal did not differ from students with learning handicaps on academically related self-concept dimensions, despite scoring significantly higher than the students with learning handicaps on measured achievement. Perhaps this occurred because students who were educationally marginal judged students with learning handicaps to be an inappropriate comparison group: Students with learning handicaps were labeled by the school and received special educational services, whereas the students who were educationally marginal shared neither of these negative distinctions; students who were educationally marginal would therefore be motivated not to feel a bond with students with learning handicaps (cf. Miller et al., 1988), lessening the likelihood that students who were educationally marginal would use the students with learning handicaps as a comparison group.

The gender differences obtained in the present study were fairly similar to differences reported in recent studies by Marsh and his colleagues (e.g., Marsh, Byrne, 1988; Marsh et al., 1985; Marsh et al., 1988). Consistent with those studies, males had higher self-concept scores on the General, Emotional, Physical Ability Physical Appearance, and Opposite Sex Peer Relations scales, whereas females had higher scores on the Verbal, Honesty, and Same Sex Peer Relations scales. On the other hand, certain of our findings conflict somewhat, with those of Marsh et al.: (a) females usually have higher Academic and males higher Mathematics self-concept scores, but in the present study the trends in these directions were not significant; and (b) females have been found to have higher Parental Relations...
self-concept scores (Marsh et al., 1988), but males in the present study reported significantly higher self-concept scores on this dimension. However, as an overall evaluation, there is notable consistency in the gender differences found in the present study with gender differences found in previous research. Moreover, and of importance, gender did not moderate the effects of academic level on self-concept scores.

Turning to ethnic group differences, the findings of significantly higher self-concept scores for black students, relative to white and Hispanic students, on all four academically related self-concept scales, as well as on five of the seven nonacademic self-concept scales, are inconsistent with generally held beliefs among educators. The black and white subjects in our study did not differ on standardized measures of achievement, despite the fact that black students generally score substantially lower than do white students on aptitude and achievement tests (Tyler, 1965). Stated differently, the black students in our study scored at approximately the same level as the white students and, therefore, substantially higher than modal achievement levels reported for black students in previous studies. Our dilemma here is to explain the significantly higher self-concept scores for black students despite the fact that there were no significant differences in measured achievement between black and white subjects. Frankly, our design does not permit us to propose a single explanation for the finding with any certainty.

However, the social comparison processes that are presumed to underlie self-evaluations may provide an answer for these results. The self-concept scores for black students may be consistent with previous findings if we consider who the comparable students are with whom black students compared their performance when forming their self-evaluations. The more favorable self-concept ratings of black students could reflect the fact that the comparable students for them are other black students in general, or a general expectation for achievement—not all classmates regardless of ethnicity. By virtue of achieving at the same level as white students and, therefore, above the expected mean level for black students, the black students could compare their level of achievement with a standard for expected black achievement (i.e., a level below white students) and conclude that they are doing "very well." White students, with the same achievement level as the black sample, may compare their performance to the standard for white achievement and not fare as well by comparison—hence, their personal evaluation on the favorable-unfavorable dimension resulted in a lower self-concept. It is interesting that these ethnic differences on academically related self-concept, presumably based on relative levels of academic achievement, generalized strongly to nonacademic dimensions of self-concept. Should subsequent research provide support for this social comparison process interpretation, the task would be to identify how children identify the "comparison students." How narrowly or broadly are comparative students defined? How do gender, ethnic group, ability group, social class, and other status variables enter into the definition of comparison groups? Moreover, what is the role of the teacher and other socializing agents in defining for students which students constitute the appropriate comparison group for them?

The preceding arguments regarding self-concept scores do, however, require some qualification when considering the joint effects of academic level and ethnicity. Based on the main effects alone, one would expect (a) regular class students to have the highest level of self-concept, students with learning handicaps to have the lowest level, and students who were educationally marginal to score between the regular class and students with learning handicaps; (b) blacks to score higher than whites, who should score higher than Hispanics; and (c) the academic level order to hold for each of the three ethnic groups. Recall the pattern of findings on academic and verbal abilities (see figures 1 and 2, respectively) revealed the expected ethnic group ordering effects. However, these effects were educationally mediated: blacks generally lower levels of self-concept than would be found from the main effects on measured achievement.

The obtained patterns of academic self-concept as a function of academic and ethnic differences in the groups or strength of potential reference groups are consistent with the findings of McGuire (1981) reporting that there was a more prominent self-concept description for minority students in majority groups; in continuing controversy over the capped, such labels and designations for minority students as being "not as good" or "not as gifted" than other students of like age and status. The expected pattern of concept scores following an academic level leading to students who are usually scoring higher than is educationally marginal than higher than students with handicaps. For white students, there is a rather less prominent self-concept description, but official labeling is usually not capped may be more prominent for white regular class and educationally marginal students only to other students who were educationally excluded from the white students, excluding the white students with handicaps. The notable scores for both white students who were educationally
on academic and verbal self-concept (Figures 1 and 2, respectively). In both of these figures, eight of the nine samples plotted the expected academic level and ethnic group ordering implied by the main effects. However, the white students who were educationally marginal had dramatically lower levels of academic and verbal self-concept than would be predicted either from the main effects or from their levels of measured achievement.

The obtained ethnic differences in patterns of academic self-concept scores as a function of academic level may arise from ethnic differences in the breadth of reference groups or strength of the bond felt with potential reference groups that were used for external social comparisons. McGuire and McGuire (1981) reported that ethnic identity was a more prominent dimension of self-description for minority students than for majority students; in contrast, due to the continuing controversy regarding labeling of minority students as educationally handicapped, such labels may be less important designations for minority students. The preceding considerations, then, might lead black and Hispanic students at all academic levels to compare their levels of achievement to all other students of like ethnicity, resulting in the expected pattern of academic self-concept scores following achievement standing, leading to students who are achieving normally scoring higher than students who are educationally marginal, who, in turn, score higher than students with learning handicaps. For white students, ethnicity should be a rather less prominent aspect of self-description, but official labeling as learning handicapped may be more prominent. As a result, white regular class and students who were educationally marginal might compare their performance only to other regular class and students who were educationally marginal, excluding the white students with learning handicaps, with whom they feel no shared identity or bond. The resulting self-concept scores for both white regular class and students who were educationally marginal would be expected to suffer in this case, as these groups would not include the low-achieving students with learning handicaps in their comparison group. This might be especially devastating for the self-concepts of white students who were educationally marginal, for whom the “excluded” students with learning handicaps were the only students who tended to achieve at lower levels than they did. White students with learning handicaps might use all other white students as comparison, attempting to enhance their sense of identity with other students in school; however, the resulting relative performance evaluations with these other students would lead to rather low levels of self-concept, as observed in the data.

Moreover, given the attention in California to minority students with achievement problems (Diana v. State Board of Education, 1970; Larry P. v. Wilson Riles, 1971), teachers may be quite responsive to minority students having academic difficulties and relatively unresponsive to white students encountering similar problems. This could arise because teachers may assume that white students receive needed supports at home or can withstand academic problems without suffering negative personal consequences. Clearly, additional study of students differing in ethnicity and academic level is needed to determine the replicability of the present findings and to investigate the alternative explanations proposed.

For over 20 years, concern has been expressed over the possible negative consequences of certain educational grouping practices on self-concepts of low-achieving children. Measurement problems stifled efforts to provide empirical evidence addressing these concerns. In the present investigation, a scale for measuring self-concept, the Self Description Questionnaire II, had acceptable and rather comparable psychometric properties when used with regularly achieving children; low-achieving, unlabeled children; and special education students with mild handicaps (Little et al., 1990). Moreover, the investigation yielded results that under-
score the complexity of studying the relations of dimensions of self-concept to educational grouping practices. Ethnic group and gender differences revealed in the current investigation suggest the need to consider differences beyond educational placements if we are to understand the consequences of placements on nonacademic outcomes.

References


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As a special issue of the American Journal on Mental Retardation (AJMR), guest edited by David L. Coulter, will be devoted to the topic of people with mental retardation and epilepsy. Manuscripts are requested on any aspect of this topic, including epidemiology, etiology, recognition, diagnosis, treatment, prognosis, psychosocial issues, delivery of services, access to care, quality of life, and quality assurance. Review articles, brief reports, and reports of clinical trials, and new investigative research will be considered. All manuscripts will be peer-reviewed according to AJMR practice and should conform to editorial policy. Please submit manuscripts by July 1, 1992, to: Epilepsy Special Issue, American Journal on Mental Retardation, University of Washington, DQ-12, Seattle, WA 98195.