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ABSTRACT

This study analyzes data from multiple national representative samples to describe the status of curriculum tracking and ability grouping in middle and high schools and the effects on the following student groups: (1) African Americans; (2) Hispanic Americans; (3) American Indians; (4) Asian Americans; and (5) Whites. Statistical data from the following studies were analyzed: (1) High School and Beyond (HSB); (2) the National Longitudinal Study of the High School Class of 1972 (NLS); (3) the National Survey of Middle School Principals, 1988; and (4) the National Assessment of Educational Progress (NAEP) Young Adult Literacy Survey, 1986. The implications of the following findings are discussed: (1) racial/ethnic minorities are disproportionately distributed among tracks and ability groups; (2) the effects of tracking and ability grouping are especially negative for African American, Hispanic American, and American Indian students; (3) the effects of tracking and ability grouping are positive for Asian American students but have negative implications; and (4) 10-year trends reveal negative implications of tracking for White students. Alternatives to tracking and ability groups are suggested. A list of 15 references and eight tables of statistical data are appended. (FMW)

CDS

THE JOHNS HOPKINS UNIVERSITY

TRACKING

Implications for Student Race-Ethnic Subgroups

Jomills Henry Braddock II

Report No. 1

February 1990

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The Center

The mission of the Center for Research on Effective Schooling for Disadvantaged Students (CDS) is to significantly improve the education of disadvantaged students at each level of schooling through new knowledge and practices produced by thorough scientific study and evaluation. The Center conducts its research in four program areas: The Early and Elementary Education Program, The Middle Grades and High Schools Program, the Language Minority Program, and the School, Family, and Community Connections Program.

The Early and Elementary Education Program

This program is working to develop, evaluate, and disseminate instructional programs capable of bringing disadvantaged students to high levels of achievement, particularly in the fundamental areas of reading, writing, and mathematics. The goal is to expand the range of effective alternatives which schools may use under Chapter 1 and other compensatory education funding and to study issues of direct relevance to federal, state, and local policy on education of disadvantaged students.

The Middle Grades and High Schools Program

This program is conducting research syntheses, survey analyses, and field studies in middle and high schools. The three types of projects move from basic research to useful practice. Syntheses compile and analyze existing knowledge about effective education of disadvantaged students. Survey analyses identify and describe current programs, practices, and trends in middle and high schools, and allow studies of their effects. Field studies are conducted in collaboration with school staffs to develop and evaluate effective programs and practices.

The Language Minority Program

This program represents a collaborative effort. The University of California at Santa Barbara is focusing on the education of Mexican-American students in California and Texas; studies of dropout among children of recent immigrants are being conducted in San Diego and Miami by Johns Hopkins, and evaluations of learning strategies in schools serving Navajo, Cherokee, and Lumbee Indians are being conducted by the University of Northern Arizona. The goal of the program is to identify, develop, and evaluate effective programs for disadvantaged Hispanic, American Indian, Southeast Asian, and other language minority children.

The School, Family, and Community Connections Program

This program is focusing on the key connections between schools and families and between schools and communities to build better educational programs for disadvantaged children and youth. Initial work is seeking to provide a research base concerning the most effective ways for schools to interact with and assist parents of disadvantaged students and interact with the community to produce effective community involvement.

Abstract

This study analyzes data from multiple national representative samples to describe the status of curriculum tracking and ability grouping in middle and high schools and the effects on African American, Hispanic, American Indian, Asian American, and White students. The analyses compare the representation in academic, vocational, and general curriculum tracks of race-ethnic subgroups of students to white students, document ten-year trends in comparative representativeness, and examine representation in high-ability, honors, and remedial courses. Further analyses examine the effects of curriculum tracking on three dimensions of adult literacy

The study finds that race-ethnic subgroups of students are maldistributed in curriculum tracks and ability groups; the effects of tracking and ability grouping are especially negative for African American, Hispanic, and American Indian subgroups; the effects are positive for Asian American subgroups but have negative implications; and ten-year trends reveal negative implications of tracking for white majority students. Alternatives to tracking and ability grouping are suggested for study.

Introduction

Studies of tracking and ability grouping have called attention to their potential harmful effects on low income and racial and ethnic student subgroups who are often overrepresented among the low tracks and classes (Oakes, 1985). Yet very little is known about the prevalence of tracking and ability grouping in schools or about the actual dispersion of African American, American Indian, Asian, and Hispanic students across school programs or classes of different ability levels. Thus, a major objective of this paper is to clarify the magnitude of the problem of African American, American Indian, Asian and Hispanic students' maldistributions across tracks and ability groups.

We address these issues by using several different sources of large national survey data to (1) summarize current national profiles of school's practices of tracking and ability grouping across the grades using recent survey data (2) analyze recent trends in secondary-level tracking of major race-ethnic student subgroups (3) discuss the implications of tracking for race-ethnic student subgroups' educational outcomes, including adult literacy and (4) consider alternative strategies that schools can use to address problems of instruction and student diversity.

Background

The term "tracking" is typically used to refer to between-class homogeneous grouping of students, including the program differentiation in high schools as well as the separate ability-grouped classes based on evaluations of students' current academic preparation found with different frequencies at all levels of schooling. In theory, tracking is used to accommodate instruction to the diversity of student needs, interests, and abilities found in most schools. The theory is that students will learn best when the instructional content is matched well to current individual knowledge and abilities, thus it is necessary to divide students into homogeneous learning groups to have an effective learning program. With homogeneous groups, a teacher can offer a lesson that no student finds too hard or too easy, which in theory should maximize student motivation and learning.

Tracking continues to be among the most controversial issues in American education. Education researchers and school practitioners probably disagree more about the need for and the effects of tracking than any other single feature of public schools. Many researchers and theorists advocate the elimination of tracking and between-class ability grouping. They note that ability grouping is unfair to low achievers, citing problems of poor peer models, low teacher expectations, concentration of minority students in low tracts, and slow instructional pace. Proponents typically counter that ability grouping lets high achievers move rapidly and gives low achievers attainable goals and extra help.

The effects of various forms of between-class ability grouping (e.g., course and program tracking) have been extensively studied. According to Slavin (1988), the research evidence indicates, almost without exception, that between-class ability grouping or tracking has few if any benefits for student achievement.

Nevertheless, tracking continues to be widely used in routine classroom practice at all levels of schooling. Teachers at all levels have often reported both using and believing in some kind of ability grouping (e.g., NEA, 1968; Wilson & Schmits, 1978). However, there are some recent signs that some of the problems of tracking may be finally addressed in practice. As a result of some of the major efforts for school restructuring recommended by both school practitioners and education policy makers, or often out of a concern for social justice, many districts have begun to reexamine their ability grouping practices. And challenges to ability grouping have often become a major issue in many school desegregation cases (e.g., *Hobson vs. Hansen, 1967 U.S. Department of Education v. Dillon County School District No. 1, 1986*).

Curriculum tracking in American high schools acts as an allocation mechanism that sorts students into vocational, academic, and general education programs. Vocational programs are designed to develop specific occupational skills that lead to direct entry into the labor market; academic programs are designed to develop the

more advanced academic skills and knowledge which are prerequisites for postsecondary schooling prior to labor force entry; general education programs lack the specialized focus of either the vocational or college prep curriculum -- serving mainly as a holding pen prior to graduation or dropping out. Thus, tracking may operate as a key mediating mechanism in the link between education and adult career success. Recently, corporate leaders and educators have focused increased attention on the relationship between the type and level of skill brought by American high school graduates to the U. S. workforce and the content and quality of their courses and programs of study. Or as Gamoran (1987) notes, students' "opportunities to learn" are directly related to their course and track placements. Thus there is a growing concern about the impact of tracking and educational stratification generally on the well being of our national economy.

Patterns, Trends, and Inequities in Tracking and Ability Grouping

How pervasive are tracking and between-class ability grouping? And to what extent are African American, Hispanic, American Indian and Asian students maldistributed across curriculum tracks and ability-grouped classes? We will shed some light on these questions by first, presenting descriptive profiles that show the status of high school curriculum tracking of race-ethnic subgroup students in 1982 compared to 1972, based on High School and Beyond (HSB) data and National Longitudinal Study of the High School Class of 1972 (NLS) data. Second, we will present national distributions that show the overall prevalence of between-class grouping and curriculum tracking in American schools, based on data from the NLS, the HSB, and the Johns Hopkins University 1988 National Survey of Middle Grades Principals. Third, we will use data from the 1986 National Assessment of Educational Progress (NAEP) Young Adult Literacy Survey to examine the effects of track placement on young adult literacy.

High School Program Placement

Table 1 presents nationally representative data that show the status of curriculum track placement for Hispanic, American Indian, Asian, African American and White high school students in 1982 (HSB data, top panel) and in 1972 (NLS data, bottom panel). These data allow us to examine two aspects of tracking -- first, the recent status of tracking (1982) and the dissimilar distributions among the various populations; second, trends in curriculum program tracking among these populations during the ten-year period from 1972 to 1982.

We will examine these data to compare the curriculum track status of African American and Hispanic high school seniors with the curriculum track status of White high school seniors in 1982 and in 1972, and we will identify trends over the ten-year period for these populations.

Table 1 about here

We will then report the status of American Indian and Asian subgroups compared to Whites in 1982; no comparable 1972 data are available for these populations.

African American Students

The top panel of Table 1 shows that 36 percent of African American high school seniors in 1982 were enrolled in academic programs (as compared to 41 percent of White seniors), 25 percent were in general education programs (versus 30 percent of White seniors), and 39 percent were enrolled in vocational education programs (versus 29 percent of White seniors). Thus, compared to Whites in 1982, African American students were significantly overrepresented in the vocational education track and significantly underrepresented in the academic and general program tracks: African American students participated in the vocational track at a rate 34 percent higher than (or 1.34 times) the rate for White students. In contrast, the participation rate in academic programs among African American students was 88 percent of (or 12

percent below) the rate for Whites, and, in the general track, the African American student participation rate was 84 percent of (or 16 percent below) the rate for White students.

The bottom panel of Table 1 shows that in 1972, 33 percent of African American high school seniors were enrolled in academic programs (as compared to 52 percent of White seniors), 34 percent were in general education programs (versus 28 percent of White seniors), and 33 percent were enrolled in vocational education programs (versus 19 percent of White seniors). Thus, compared to Whites, African American students in 1972 were significantly overrepresented in the general and vocational education tracks and significantly underrepresented in the academic program track. African American students participated in the vocational track at a rate 71 percent higher than (or 1.71 times) the rate for White students and in the general track at a rate 20 percent higher than (or 1.20 times) the rate for White students; in contrast, the participation rate in academic programs among African American students was only 63 percent of (or 37 percent below) the rate for Whites.

Hispanic Students

The top panel of Table 1 shows that in 1982, 26 percent of Hispanic high school seniors in 1982 were enrolled in academic programs (compared to 41 percent of White seniors), 30 percent were in general education programs (versus the same proportion -- 30 percent -- of White seniors), and 44 percent were enrolled in vocational education programs (versus 29 percent of White seniors). Thus, compared to Whites, Hispanic students in 1982 were significantly overrepresented in the vocational education track and significantly underrepresented in the academic program track. Hispanic students were in the vocational track at a rate 52 percent higher than (or 1.52 times) the rate for White students; in contrast, the participation rate in academic programs among Hispanic students was only 65 percent of (or 35 percent below) the rate for Whites.

The bottom panel of Table 1 shows that in 1972, 28 percent of Hispanic high school seniors were enrolled in academic programs (as compared to 52 percent of White seniors), 42 percent were in general education programs (versus 28 percent of White seniors), and 29 percent were enrolled in vocational education programs (versus 19 percent of White seniors). Thus, compared to Whites, Hispanic students in 1972 were significantly overrepresented in the general and vocational education tracks and significantly underrepresented in the academic program track. Hispanic students participated in the vocational track at a rate 52 percent higher than (or 1.52 times) the rate for White students, and in the general track at a rate 50 percent higher than (or 1.50 times) the rate for White students; in contrast, the participation rate in academic programs among Hispanic students was only 54 percent of (or 46 percent below) the rate for Whites.

Trends Over 10 Years

The NLS data provide a snapshot of the status of program tracking for a nationally representative sample in 1972; the HSB data provide a snapshot of the status of program tracking for a nationally representative sample in 1982. Because these are nationally representative samples, we can compare the data and talk about "trends" that have occurred. We have no way of knowing, however, the real progression of any changes that have taken place -- whether changes occurred gradually over the time period or perhaps took place abruptly during a shorter time within the overall time period, or even whether changes occurred in one direction consistently or moved back and forth in various directions.

The major trend over the 1972-1982 period for both African American and Hispanic students was to continue, compared to Whites, to be overrepresented in vocational education tracks and underrepresented in academic tracks.

The magnitude of the underrepresentation of both groups compared to Whites in academic tracks had diminished by 1982 -- African American representation was 88 percent of the White rate in 1982 compared to 63 percent of the White rate in 1972; Hispanic representation was 65 percent of the White rate in 1982 compared to 54 percent of the White rate in 1972.

On the surface, this looks as if African American students, especially, have made substantial gains in representation in the academic track in their senior year of high school. And they

have, compared to White representation, but the gain from 63 percent to 88 percent of the White rate was due mainly to a decrease in White students in the academic track (from 52.5 percent in 1972 to 40.9 percent in 1982). The same is true for the Hispanic gain from 54 percent of the White rate in 1972 to 65 percent in 1982 -- the gain is mostly accounted for by the decrease in White students in academic tracks from 1972 to 1982.

The actual percents of African American and Hispanic seniors in the academic track in 1972 and 1982 show clearly that, although these subgroups achieved increased parity with White students, they achieved no real gain in movement into the academic track. The percent of Hispanic students in the academic track, in fact, decreased from 28.1 to 26.5, while the percent of African American students in the academic track increased slightly -- from 33.0 to 35.9. If the percent of White students in the academic track had stayed the same from 1972 to 1982, the African American student rate of representation compared to Whites would be only 68 percent in 1982, compared to 65 percent in 1972. Similarly, the rate of Hispanic student representation compared to Whites would be only 50 percent in 1982, compared to 54 percent in 1972. What these figures clearly show is that movement toward parity with White students by African American and Hispanic students from 1972 to 1982 does not reflect that more of these students moved into the academic track in that ten-year period; it mostly reflects the fact that White students shifted in substantial numbers from academic tracks to vocational and especially general tracks from 1972 to 1982.

We will look briefly at the trends in representation in the vocational and general tracks from 1972 to 1982. Both African American and Hispanic students continued to be overrepresented in the vocational track in 1982 compared to Whites, and both had substantial increases in the percent of students actually in vocational education programs -- African Americans increasing from 33.1 percent in 1972 to 38.7 percent in 1982, and Hispanics increasing from 29.5 percent in 1972 to 43.9 percent in 1982. The Hispanic students, despite their large actual increase in the percent of students in the vocational track, remained at the same parity level with Whites as in 1972 (represented at a rate 1.52 times that of White students) because White students also increased their actual percent participation in the vocational track from 19.4 to 28.9 percent during the ten-year period. Similarly, although African American students gained in parity with White students, going from a rate of 1.71 times to a rate of 1.34 times that of White students, this gain came about because of the influx of a larger percent of White students in vocational tracks, not because the African American students decreased their own percentage in the vocational track.

Both African American and Hispanic students decreased their actual percent of participation in the general track from 1972 to 1982, and both went from being overrepresented in the general track compared to Whites (1.2 percent and 1.5 percent of the White rate, respectively) to being slightly underrepresented in the general track compared to Whites (.84 and .98 percent of the White rate, respectively). Again, the move from over- to underrepresentation was influenced by an increased percentage of Whites moving into the general track (28.2 percent in 1972 to 30.2 percent in 1982), but this time much of the shift was accounted for by actual movement out of the general track by the African American and Hispanic students.

The data in Table 1 alone are insufficient to interpret the trends that we've reported. We can note that little change occurred from 1972 to 1982 in the percentage of African Americans and Hispanics in academic tracks. Both these population subgroups remain underrepresented compared to Whites in the track that leads to further education and better career opportunities. Also, both these groups increased their rates of participation in vocational education tracks substantially from 1972 to 1982, and both remain heavily overrepresented compared to Whites in the track that, in theory, leads to employment directly out of high school.

We can comment on our findings regarding participation in the general track, which is acknowledged by most educators as being basically a "holding track" for students who otherwise would drop out. The substantial decrease in the percentage of African American and Hispanic students in the general track is a positive change only if the vocational track, where most of them went, does indeed provide worthwhile programs

that lead to the acquisition of worthwhile and marketable skills and entrance into meaningful employment. At the same time, the fact that few of these students moved into the academic track is disquieting. It is very possible that the change out of the general track occurred because some high schools serving African Americans and Hispanics simply eliminated the general track. The question then becomes whether the vocational track into which these students moved was broadened and expanded to provide them with a strong practical education, or whether it simply became the new holding arena.

American Indian and Asian Students

The top panel of Table 1 shows that 19 percent of American Indian high school seniors in 1982 were enrolled in academic programs (as compared to 41 percent of White seniors), 49 percent were in general education programs (versus 30 percent of White seniors), and 32 percent were enrolled in vocational education programs (versus 29 percent of White seniors). Thus, compared to Whites, American Indian students in 1982 were significantly overrepresented in the general education track and significantly underrepresented in the academic program track. American Indian students participated in the general track at a rate 62 percent higher than (or 1.62 times) the rate for White students; in contrast, the participation rate in academic programs among American Indian students was only 46 percent of (or 54 percent below) the rate for Whites.

In the top panel of Table 1, the data show that 58 percent of 1982 Asian high school seniors were enrolled in academic programs (as compared to 41 percent of White seniors), 22 percent were in general education programs (versus 30 percent of White seniors), and 20 percent were enrolled in vocational education programs (versus 29 percent of White seniors). Thus, compared to Whites in 1982, Asian students were significantly underrepresented in the general and vocational education tracks and significantly overrepresented in the academic program track. Asian students participated in the academic track at a rate 42 percent higher than (or 1.42 times) the rate for White students; in contrast, the Asian participation rate in general education programs was only 74 percent of (or 26 percent below) the rate for Whites, and in vocational education programs the participation rate was only 68 percent of (or 32 percent below) the rate for Whites.

These distributions of program placements have implications for students' access to "learning opportunities" as reflected in specific course enrollment patterns.

Ability Grouped Class Assignment and Curriculum Tracking

Our next sets of data pertain to the assignment of students to classes according to ability. Elementary school students often are assigned to high, average, or low achieving self-contained classes on the basis of some combination of a composite achievement measure, IQ scores, and/or teacher judgment, and remain with the same ability-grouped classes for all academic subjects. In junior high and middle schools, ability grouped class assignment may take the form of block scheduling, where students are assigned to one class by ability and travel together from subject to subject, or students may be assigned by ability to each subject separately. High school students are usually assigned to academic, vocational, or general program tracks, but then also assigned to separate ability grouped courses within the curriculum tracks (e.g., Honors or Advanced Placement, regular, and remedial courses).

Tables 2-7 report the prevalence of ability-grouped class and course assignment for African American, Hispanic, American Indian, Asian, and White students at various grade levels based on multiple data sets. The Johns Hopkins University National Survey of Middle Grades asked principals whether they assign students to homogeneous groups on the basis of ability or achievement. Their responses, presented in Table 2, reveal

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Table 2 about here

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several important differences in grouping practices by subject and by school ethnic composition and "average" student ability.

Table 2 shows, for grade seven students, the percent of schools that use homogenous grouping in all or some of their classes (by subject). Roughly two-thirds of the schools report using at least some between-class ability grouping. Across all types of schools, mathematics, reading and then English are the subjects most often grouped by ability. The use of between-class grouping to create "all" classes homogeneous in ability is quite common in grade 7; roughly one of five schools report that their seventh grade classes are ability grouped for *each* subject. Interestingly, the practice of ability grouping for all subjects is more often found in schools with sizable (more than 20%) enrollments of African American and Hispanic students. As the bottom three panels of Table 2 show, this relationship between full scale ability grouping and ethnic concentration holds even when schools are disaggregated in terms of principal reports of "average" student ability.

The National Longitudinal Study of the High School Class of 1972 (NLS) also asked principals whether they assign students to homogeneous groups on the basis of ability or achievement. Principal responses to this question in the NLS survey are presented in Table 3.

Table 3 shows the percent of high schools that use homogenous grouping in all or some of their classes. Nearly all (92 percent) of the schools report the use of between class ability grouping in some subjects. Where ability grouping is used, it typically applies to all students (57 percent). However, the use of ability grouping to create "all" homogeneous classes is somewhat more common for high ability students (8 percent) than for low ability students (5 percent).

Tables 3 & 4 about here

Table 4 shows patterns of course tracking in high schools by subject. In grade 12, English (59 percent), mathematics/science (42 percent), and social studies (39 percent) are the subjects in which students are most often grouped by ability. English more often segregates students into a larger number of groups (12 percent report five or more ability levels) than other academic subjects.

Thus Table 3 and 4 show concurrently that course tracking -- between-class ability grouping -- is a prevalent grouping method in high schools and especially in major subjects. Patterns of course tracking by race-ethnic student subgroups (see Table 5) reveal some strikingly dissimilar distributions among Whites and African Americans. The top panel of Table 5 shows that only 34 percent of the African American high school seniors who were enrolled in academic programs (compared to 39 percent of White seniors) were in their school's top math/science classes.

Table 5 about here

Similar patterns among African American and White seniors are found in the top English (30 vs 36 percent) and social studies (37 vs 43 percent) classes of their schools. African Americans and Whites in the general education and in vocational education programs show few striking differences in top class participation patterns except for English in general education (6 vs 14 percent) and science/math in vocational education (12 vs 18 percent). Thus, overall differences between Whites and African American student participation rates in top classes across core academic subjects are primarily linked to academic college preparatory programs.

Honors and Remedial Group Course Placements

How do student placements in "low track" remedial and special education courses versus "high track" honors courses differ by students' race-ethnic status? Based on data from High School & Beyond, Table 6 presents a summary of multiple regression analyses showing the effect of race-ethnicity on placement in special education courses and placement in remedial courses in English and mathematics of 1982 high school seniors with controls for sex, high school track placement, and school demographics -- region, urbanicity, and size of 12th grade class.

Table 6 shows that, compared to White high school seniors, African American seniors are

significantly overrepresented in both remedial English (B=.071) and remedial mathematics (b=.128) courses. These effects are net of statistical controls for sex, track placement, and school demographics -- size, region, and urbanicity.

Table 6 about here

American Indian seniors are also significantly overrepresented in remedial English (B=.077) and remedial mathematics (b=.151) courses, compared to White high school seniors.

In addition, Table 6 shows that, compared to White high school seniors, Hispanic seniors are significantly overrepresented in remedial English (B=.063), remedial mathematics (b=.131), and special education (B=.014) courses.

In contrast, Asian seniors are not significantly overrepresented in remedial English (B=.038), remedial mathematics (b=.018), or special education (B=.014) courses, compared to White high school seniors.

Table 7 presents a summary of multiple regression analyses showing the effect of race-ethnicity placement in honors (English and mathematics) courses for 1982 high school seniors with controls for sex, high school track placement, and school demographics -- region, urbanicity, and size of 12th grade class.

Table 7 shows that, compared to White high school seniors, African American seniors are significantly underrepresented in both honors English (B=-.052) and honors mathematics (B=-.031) courses. Hispanic seniors are also significantly underrepresented in both honors English (B=-.031) and honors mathematics (B=.032) courses.

In contrast to other race-ethnic subgroups, Asian seniors are significantly overrepresented in honors mathematics (B=.123), and are neither over- nor underrepresented in honors English (B=.039) courses, compared to White high school seniors.

Table 7 about here

American Indian seniors are neither over- nor underrepresented in honors English (B=.001) or honors mathematics (B=.008) courses, compared to White high school seniors.

These race-ethnicity effects are net of statistical controls for sex, track placement, and school demographics -- size, region, and urbanicity. The unstandardized regression coefficients shown in Table 7 indicate that the negative effect on honors English course placements of race-ethnicity is somewhat stronger for African Americans than for Hispanics, while race-ethnicity has an equal depressing effect on honors mathematics course placements for both groups.

However, the strongest net effect observed in these analyses is the positive effect on honors mathematics placement of race-ethnicity for Asian students.

The maldistributions of program and ability group placements that we have detailed in Tables 1-7 have obvious implications for students' access to "learning opportunities." Our next analyses examine the connections between this restricted access in high school and adult literacy outcomes.

Tracking and Literacy

Despite some variations among race-ethnic subgroups and across different literacy domains, young adult literacy is strongly affected by high school curriculum track placements. This generalization holds even when levels of educational attainment and key social background factors are statistically controlled.

Table 8 presents results from regression analyses based on the recent National Assessment of Educational Progress (NAEP) Young Adult Literacy Survey. These analyses compare the effects of high school curriculum track placement for African American, Hispanic, Asian and White students on three major dimensions of adult literacy:

Prose -- skills and strategies needed to understand and use information from sources that are often found in the home or community, e.g., a newspaper editorial;

Document -- skills and strategies required to locate and use information contained in nontextual materials, including graphs, charts, indexes, tables, schedules and the like; and

Computational -- skills and knowledge needed to apply arithmetic operations in addition, subtraction, multiplication, and division (singly or sequentially) in combination with printed materials in tasks such as balancing a checkbook or completing an order form.

Table 8 about here

These analyses show that high school tracking alone (top panel) can be a substantial and statistically significant determinant of young adult literacy. For prose literacy skills, high school tracking accounts for between five percent (for African Americans) and twenty-four percent (for Asian Americans) of the total variation in young adult proficiency. A similar range of effects is observed for document literacy skills where high school track placement accounts for from five percent (for Hispanics) to twenty-two percent (for Asian Americans) of the variance in young adult proficiency levels.

In contrast, although still statistically significant, the explanatory power of high school tracking is substantially less for computational or quantitative literacy skills, accounting for as little as three percent of the variance in young adult proficiency among Whites and a high of only eight percent among African Americans.

The middle and bottom panels of Table 8 show that, in general, high school tracking continues to exhibit a significant effect on young adult literacy proficiency even when social background and educational attainment indicators are statistically taken into account.

Among White and Asian American young adults, the net effect of high school tracking after controlling for social background and educational attainment remains substantial and significant for both prose and document literacy skills, but not for computational literacy skills. In contrast, among African American young adults, the net effect of high school tracking washes away and is not significant for prose literacy but remains significant and quite substantial for both document and computational literacy skill domains.

For Hispanic young adults, educational attainment appears to wash away any influence of high school tracking on all three literacy domains. (The illogic of this finding indicates that it is probably an artifact of the data, and further study is required.)

Overall, it appears that high school track effects on young adult literacy are stronger for Asian Americans and African Americans than they are for Whites, with Asian Americans exhibiting the strongest effect among the ethnic subgroups examined.

The net effects of track placement on young adult literacy shown in the bottom panel of Table 8 indicate that tracking exhibits a substantially stronger influence among African Americans than among Whites on two of the three literacy domains examined here -- document and computation skills.

For document literacy skills the net effect of high school track placement is about forty percent greater among African Americans while the net track effect on computational literacy skills is nearly twenty times that observed for tracking on the quantitative proficiency of White young adults. For Asian American young adults, the magnitude of the track net effect exceeds that of Whites across all three literacy domains by an even greater margin, although among both groups it is statistically significant only for prose and document literacy.

Our findings on the relationship between curriculum tracking and young adult literacy skills show clearly that placement in the academic track as opposed to placement in general and vocational tracks has substantial positive effects on prose, document, and computational literacy for young adults, while placement in general and vocational tracks has substantial negative effects on these literary measures. In general, because these

effects remain after we control for educational attainment and social background, we can say with some confidence that the tracking itself, over and above other factors, is responsible for a significant portion of the disparate outcomes among White, Asian American, and African American groups.

To some degree this statement applies to the disparate outcomes for Hispanic young adults also, based on the fact that the effects remain significant for Hispanics after we control for social background, although not when we control for educational attainment as well.

Implications of Tracking for Race/Ethnic Students

Our findings on the maldistributions of groups of race/ethnic students in curriculum tracks and ability groups, and the effects of placement in those tracks and groups, have many policy implications for equity and excellence in the American educational system.

First, our clear findings on the effects of curriculum tracking and ability grouping indicate the need for change. There may have been a time when curriculum tracking in schools did actually coincide with the needs of the society and the economy outside of schools -- that is, a number of academically proficient students were needed to pursue further education and careers that depended upon that education, while a number of non-academically oriented students were needed to enter the workforce directly and perform the important and even well-paying jobs that required less education. This situation has changed dramatically, but curriculum tracking still exists.

The effects of tracking and ability grouping are especially negative for American Indian sub-groups. This is no new concern. The historic ineffectiveness of American schooling for this disadvantaged population is well documented, and a significant amount of federal funds has been and is being directed toward this population, with few results so far. We badly need an accounting and synthesis of the educational programs that have been developed in our attempts to improve education for American Indians that will provide some basis for identifying and further developing programs that are actually effective.

The effects of curriculum tracking and ability grouping are also especially negative for African American and Hispanic subgroups. For both of these subgroups, our analyses show no real movement out of general and vocational track programs into academic programs over a ten-year period. Students in these two subgroups constitute our largest minority populations and the future economical health of the country depends upon their access to a high quality education.

Our findings of large positive effects of tracking for Asian Americans cannot be viewed entirely positively -- too many of the implications are negative. The success of Asian American students in our curriculum-tracked schools is creating social backlash against this population that bodes ill for the successful integration of Asian American children into the fabric of American society. At the same time, the overall success of Asian American students in tracked American high schools obscures the fact that some Asian American subgroups are as educationally disadvantaged as the African American, Hispanic, and American Indian subgroups.

Finally, there are negative implications of our findings for White majority students. The decrease of White students in the academic track between 1972 and 1982 (from 52.5 to 40.9 percent), coupled with the increase in the general and vocational tracks (from 28.2 to 30.2 and from 19.4 to 28.9, respectively), could easily be viewed as a major shift from being advantaged to being less advantaged or even disadvantaged in terms of educational opportunities to learn.

Alternatives to Tracking and Ability Grouping

The maldistributions and their effects on adult literacy outcomes presented in this paper make clear that if schools are to meet the requirements of our economy for a more highly skilled future workforce (especially in light of changing demographics) public schools must provide more equitable access to "learning opportunities" which cultivate reasoning, inference, and critical thinking. Accomplishing this important shift in educational policy will require major school restructuring efforts that encourage effective alternatives to tracking and between-class ability grouping.

Tracking is intended to match the curriculum with students' actual current competencies and to reduce the range within a class so the group lessons can meet the needs of all the students enrolled.

But, tracking is often done by using one general test (such as an IQ test or composite achievement result) and students remain in the same groups for all subjects. Tracking (or between-class grouping), which earlier had occurred mainly in secondary grades, now is very often found in elementary grades, in which within-class grouping used to be the main approach). For example, if there are three grade-four classes, these classes are now often organized as 4-1, 4-2, 4-3, ranked by a test score (see McPartland, Coldiron & Braddock, 1987).

Tracking poses several dangers:

1) "inappropriate placement" -- one test often fails to pick up the variety of individual student strengths and weaknesses across different subjects. For example, a student may be behind in reading, ahead in math;

2) "differential resource allocation" -- the low tracks often get the poorest resources, especially the least experienced or least expert teachers, due to seniority regulations and many teachers' preferences for the top classes;

3) "differential teacher behavior" -- low tracks are often accompanied by low expectations. Teachers and students think the lowest classes are for "dummies" and there is little push to work very hard at demanding learning tasks. Sometimes there is even a policy of low grades in low tracks (no A's); and

4) "restricted learning opportunities" -- there may be a cumulative process by which things get worse over the grades for students in the lowest tracks. Early low-track placement means poorer resources and expectations which produce lower learning rates for the next class assignments, and so on. Thus small initial differences get magnified.

Whatever their achievement effects may be, ability grouping plans in all forms are being questioned by many educators, who feel uncomfortable making decisions about elementary-aged students that could have long-term effects on their self-esteem and life chances. In desegregated schools, the possibility that ability grouping may create racially identifiable groups or classes is of great concern (Epstein, 1985). For these and other reasons, several alternatives to ability grouping have been proposed.

Effective and innovative responses to student diversity do not just happen. Educators and researchers agree that substantial investments by school systems in staff training may be required to substantially alter current patterns of ability grouping and tracking. Thus if educators are to insure equal educational opportunities and to provide *every* student with *opportunities to learn* to their fullest potential, it is necessary to know more about both how to deal with student diversity and how to train teachers to do so.

An appealing alternative to ability grouping proposed by Oakes (1985) and Wilkinson (1984), among others, involves cooperative learning instructional methods in which students work in small, mixed- ability learning teams. Research on cooperative learning has found that when the cooperative groups are rewarded based on the learning of all group members, students learn consistently more than do students in traditional methods (Slavin, 1983).

Thus cooperative learning offers a plausible alternative to ability grouping which takes student

diversity as a valued resource to be used in the classroom rather than a problem to be solved. However, no research exists which specifically compares cooperative learning to ability grouping. Research comparing achievement effects of various forms of ability grouping and alternatives to ability grouping is clearly needed. At present, cooperative learning and continuous-progress programs appear to have the greatest potential as alternative means of accommodating student diversity, but the effects of these and other methods relative to those of traditional between- and within-class ability grouping methods are not currently known (Slavin, 1988).

Flexible grouping processes offer other alternatives to tracking. These processes include tracking only in math and/or English but not in other subjects, using appropriate *subject-matter tests* to make student placements in the selected subjects; making all groups as heterogeneous as possible, even in tracked classes; and covering basic subjects (such as Algebra) at all levels. If there are nine sections in 9th grade math, for example, these sections can be subsumed under two or three broad groups, so there will be less stigma.

There are more ambitious alternatives -- such as replacing tracking entirely in elementary and middle grades with the use of within-class grouping plus cooperative learning methods, or with the use of competency-based curriculum in multi-grade groupings, as in the Joplin Plan.

Looking at the evidence, this is not a yes-no question of whether to favor or oppose tracking or between-class ability grouping -- it is an issue of considering and evaluating *alternative instructional approaches* to each as primary ways to deal with student diversity.

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Table 1

Curricular Program Enrollments of 1982 and 1972 High School Seniors by Race-Ethnic Group

Cohort and Curriculum Track	Race-Ethnic Category: Hispanic	American Indian	Asian	African-American	White	Total
1982 Seniors	(N=1759)	(N=198)	(N=178)	(N=1743)	(N=9503)	(N=13382)
GENERAL						
Percent	29.6	48.8*	22.4*	25.5*	30.2	29.7
Parity Index	.98	1.62<a>	.74	.84	1.00	
ACADEMIC						
Percent	26.5*	18.8*	58.0*	35.9*	40.9	38.3
Parity Index	.65	.46	1.42	.88	1.00	
VOCATIONAL						
Percent	43.9*	32.4	19.6*	38.7*	28.9	32.1
Parity Index	1.52	1.12	.68	1.34	1.00	
Percent	42.4*	--	--	33.9*	28.2	31.3
Parity Index	1.50	--	--	1.20	1.00	
ACADEMIC						
Percent	28.1*	--	--	33.0*	52.5	44.3
Parity Index	.54	--	--	.63	1.00	
VOCATIONAL						
Percent	29.5*	--	--	33.1*	19.4	24.3
Parity Index	1.52	--	--	1.71	1.00	

Sources: Data for 1982 seniors based on first followup of sophomore participants in High School and Beyond Survey (HSB), U.S. Department of Education, National Center for Education Statistics. Data for 1972 seniors are drawn from base-year of the National Longitudinal Study of the High School Class of 1972 (NLS), U.S. Department of Education, National Center for Education Statistics.

<a> This can be interpreted as follows: "In 1982 the general education track participation rate for American Indian students was 62 percent higher than (or 1.62 times) the general track participation rate for white students."

<b> Insufficient sample sizes

*Represents significant difference from the white population at or beyond the .05 level.

Table 2

Patterns of Ability Grouped Class Assignment in Public Schools Serving Early Adolescents by Selected Student Characteristics

All Schools

	All Students	English	Mathematics	Reading	Science	Social Studies
All Homogeneous Classes	22.0	25.0	39.3	29.6	6.5	4.7
< 20% Minority	20.0	25.2	40.6	30.1	5.9	4.3
≥ 20% Minority	26.8	24.4	35.4	28.0	7.0	5.2
Schools where "typical" entering student is:						
Below Average						
All Homogeneous Classes	24.0	21.8	40.0	23.5	7.1	6.0
< 20% Minority	23.5	20.8	39.9	23.2	6.8	5.8
≥ 20% Minority	28.0	25.1	38.0	24.2	6.2	6.4
Average						
All Homogeneous Classes	20.2	30.0	40.7	35.2	5.2	2.6
< 20% Minority	17.6	32.2	43.1	37.5	5.5	2.5
≥ 20% Minority	28.0	23.5	32.8	27.4	3.3	2.4
Above Average						
All Homogeneous Classes	21.4	22.5	35.9	30.0	7.7	6.0
< 20% Minority	15.5	18.9	35.0	30.3	4.1	4.5
≥ 20% Minority	25.2	24.9	36.3	29.9	9.6	6.7

Source: Johns Hopkins University National Survey of Middle Grades Principals

Table 3

Patterns of Course Tracking in Public Comprehensive High Schools for Different Types of Students and Schools

	All Subjects	Some Subjects
School Uses Between-Classes Ability Grouping	7.9	92.1

	All Students	High Ability Students Only	Low Ability Students Only	No Students
School Uses Between-Classes Ability Grouping (where applicable)	57.5	8.4	4.7	29.4

Source: National Longitudinal Study of High School Class of 1972

Table 4

Patterns of Course Tracking in Public Comprehensive High Schools by Subject

	Subjects			
Tracking Patterns	English Language	Science/ Mathematics	Social Studies	Vocational Courses
School Uses Between-Class Ability Grouping	59.1	42.3	39.4	6.2
Number of Ability Groups (where applicable)				
Two	20.2	41.7	34.8	59.4
Three	46.2	40.0	41.4	12.2
Four	21.1	11.9	16.2	19.7
Five or More	12.5	6.4	7.6	8.7

Source: National Longitudinal Study of High School Class of 1972

Table 5
Patterns of Course Tracking in Public Comprehensive High Schools
by Subject Areas and Student Ethnicity

Subject and Ability Group	General			Academic			Vocational			Totals		
	African American	Hispanic	White	African American	Hispanic	White	African American	Hispanic	White	African American	Hispanic	White
Science/ Mathematics												
Top Class	15.0	16.0	14.0	34.1	44.6	39.3	12.4	5.9	18.3	23.6	26.0	32.3
Second	55.3	59.0	58.5	40.5	47.8	49.6	49.6	39.5	56.2	47.0	50.2	52.1
Third	20.4	22.1	16.6	23.7	6.9	10.2	29.8	39.4	15.6	24.0	19.6	11.9
Fourth	4.7	1.1	5.9	1.7	.8	.5	4.2	11.6	4.1	3.3	2.8	1.9
Fifth or Below	4.6	1.9	5.1	--	--	.4	4.0	3.6	5.8	2.2	1.3	1.8
Mean	2.31	2.16	2.32	1.93	1.64	1.73	2.42	2.71	2.23	2.15	2.05	1.90
S.D.	1.03	.85	1.04	.80	.65	.71	1.03	1.01	.99	.95	.89	.86
English/ Language												
Top Class	6.0	9.0	13.7	30.9	38.3	36.1	9.2	4.4	9.8	15.4	16.7	24.8
Second	47.2	48.7	54.8	42.5	47.4	50.1	49.6	43.4	50.0	46.5	47.7	51.5
Third	33.3	34.1	25.1	22 5	12.9	11.4	30.7	39.3	27.4	28.6	28.5	18.1
Fourth	9.3	4.4	3.3	3.3	--	1.6	7.9	7.8	10.3	7.1	3 8	3.9
Fifth or Below	4.3	3.7	3.1	.7	1.4	.8	2.6	5.1	2.5	2.5	3.3	1.7
Mean	2.60	2.47	2.29	2.00	1.79	1.82	2.47	2.67	2.46	2.35	2.31	2.07
S.D.	.93	.92	.92	.85	.77	.80	.92	.94	.91	.93	.95	.90
Social Studies												
Top Class	13.8	12.6	17.7	36.9	47.6	43.1	11.1	11.4	12.8	22.3	22.1	30.3
Second	52.0	57.7	48.2	44.6	43.4	46.6	54.9	57.1	56.6	50.0	52.9	49.2
Third	26.1	28.0	26.6	17.3	9.0	9.9	27.9	25.7	20.5	22.7	22.6	16.3
Fourth	6.0	1.1	4.3	.6	--	--	4.1	5.9	7.5	3.7	2.0	2.6
Fifth or Below	2.0	.6	3.2	.5	--	.4	1.9	--	2.5	1.4	.3	1.6
Mean	2.30	2.20	2.29	1 83	1.61	1.68	2.32	2.26	2.31	2.12	2.05	1.97
S.D.	.86	.72	.98	.77	.65	.71	.83	.74	.91	.84	.76	.88

High School Program

Source: National Longitudinal Study of the High School Class of 1972

Table 6

Effects<1> of Race-Ethnic Status on Special Education and Remedial English and Mathematics Course Placements among 1982 High School Seniors, Controlling for Students Background and School Demographic Factors

Course Placement	Race-Ethnic Group			
	African-American	Hispanic	American Indian	Asian
Special Education	.006	.014*	.008	-.011
Remedial English	.071***	.063***	.077*	.038
Remedial Mathematics	.128***	.131***	.151***	.018

<1>Effects are unstandardized partial regression coefficients derived from multiple regression analyses where course placement is regressed on race-ethnic group with controls for students sex, curriculum track placement and school demographic characteristics (region, urbanicity, and size.)

* denotes direct effect is significant at .05 level
** denotes direct effect is significant at .01 level.
*** denotes direct effect is significant at .001 level.

Table 7

Effects<1> of Race-Ethnic Status on Honors English and Mathematics Course Placements among 1982 High School Seniors, Controlling for Students Background and School Demographic Factors

Course Placement	Race-Ethnic Group			
	African-American	Hispanic	American Indian	Asian
Honors English	-.052***	-.031**	-.001	.039
Honors Mathematics	-.031**	-.032**	.008	.123***

<1>Effects are unstandardized partial regression coefficients derived from multiple regression analyses where course placement is regressed on race-ethnic group with controls for students sex, curriculum track placement and school demographic characteristics (region, urbanicity, and size.)

* denotes direct effect is significant at .05 level
** denotes direct effect is significant at .01 level.
*** denotes direct effect is significant at .001 level.

Table 8

Effects of High School Curriculum Tracking on Young Adult Literacy by Race-Ethnic Groups with Controls <1>

	White		African American		Hispanic		Asian	
	b	t	b	t	b	t	b	t
Prose Literacy								
Track Placement	5.64	(6.76)	- .92	(.40)	1.72	(.54)	20.99	(3.83)
Multiple R2	.38		.40		.62		.35	
Document Literacy								
Track Placement	6.79	(7.66)	9.63	(3.54)	-5.12	(1.22)	22.08	(3.44)
Multiple R2	.30		.28		.56		.37	
Computational Literacy								
Track Placement	.48	(.50)	9.30	(3.17)	-2.13	(.53)	6.57	(1.28)
Multiple R2	.18		.26		.48		.16	

Source: National Assessment of Educational Progress Young Adult Literacy Survey.

1 Controls include respondents education level, sex, age, parent education, region, and county of birth

* $p < .05$
** $p < .01$
*** $p < .001$

Appendix 16

END

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