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Evaluation, Placement, and Progression: Three Sites of Concern for Student Achievement

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University of California, Berkeley
Berkeley, California

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Evaluation, Placement, and Progression: Three Sites of Concern for Student Achievement

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ABSTRACT

Schools are complex organizations that serve as the primary official location for the socialization of children in the United States. Given the centrality of this institution, many theoretical frameworks are usefully applied to their study. Regardless of the framework used, however, three focal features of schools stand out—evaluation, placement, and progression. Students are evaluated, they are placed in curricular locations, and they progress through a system of such placements on their march to adult status. Each one of these features is a site of potential concern to researchers and policy-makers, for the nurturance of every student's capacities, and more specifically for nurturing the capacities of minority students. Considering three illustrative manifestations of these features—testing, tracking, and transitions—in some depth can reveal complexities that attend the educational attainment process. After considering these three illustrative cases, it will be possible to weave together their implications for all students, highlighting the ramifications for talented minority students in schools.

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Schools are complex organizations that serve as the primary official location for the socialization of children in the United States. As such, there are many theoretical frameworks one may usefully apply when studying schools. Regardless of the framework, however, three focal features of schools stand out—evaluation, placement, and progression. Students are evaluated, they are placed in curricular locations, and they progress through a system of such placements on their march to adult status (e.g., grades, institutions, classes).

Any single one of these features has many manifestations in schools, and many of those manifestations have large research literatures devoted to understanding their operation. Hence, herein I seek only to illustrate these three features, and the complex challenges that surround them, by discussing three examples in some depth—testing, tracking, and education transitions. Afterwards it will be possible to make some general observations about these features and their implications for the effort to nurture students' potential.

To further focus the discussion, I will highlight Black-White differences for attention. Although more and more research is beginning to look beyond the Black-White dichotomy, the majority of the research literature still primarily concerns Black-White differences. Thus, at times I will be able to mention other racial-ethnic groups, but the emphasis will be on Black-White differences.

Evaluation: The Illustrative Case of Standardized Test Construction

It is well known that Blacks lag behind Whites on tests of cognitive performance (e.g., Berends, Lucas, & Sullivan, 2001; Hedges & Nowell, 1999; Jencks & Phillips, 1998). Some efforts to assess the gap, however, are more perilous than others. For example, it is well known that efforts to use SAT-I scores to estimate the gap between Blacks and Whites are problematic (e.g., Grissmer, 2000).[1]

[1]The SAT-I is purely voluntary, and many factors, including regional differences in colleges' willingness to accept particular standardized tests, the known higher aspirations of Blacks compared with Whites (e.g., Mickelson, 1990), and more, render any sample of students taking the SAT-I too selective to allow generalization.

Other problems that might bedevil the estimation of racial differences in test performance are a bit more subtle. In this section, I will analyze one of those subtle issues, namely, a potential problem that appears to flow from basic principles of test construction. The activation of the principles I discuss below may produce tests that both mis-estimate levels of achievement and hinder communication about standards for attainment, with negative consequences for many students, especially minority students.

To see how these limitations might be produced, one must look loosely at how tests are constructed, ideally from an outsider perspective vis-á-vis the test construction industry. An outsider perspective is important because the insider understanding of critiques of testing too frequently translates any criticism into the language of statistical bias. This response truncates the critique of testing by defining bias, correctly, as deviation from some unknown true value, while, at the same time, asserting that *prior* tests constructed using the *same* processes of test construction opponents criticize *actually* effectively estimate a true value. This "true" value is often then compared with items or tests being criticized. When the results are similar, insiders then regard the results as refuting the critique of testing. Thus, the insider understanding subtly misses the full force of many criticisms of testing, for these criticisms tend to imply that existing testing procedures may be unable to estimate the true value with sufficient accuracy to allow a fair analysis of bias whenever one attempts to do so.

Yet the issue being raised here is not one of bias, *per se*, but one of whether the assumptions inherent in some test construction strategies pre-ordain that test results will mirror the past, ultimately limiting educators' opportunities to teach students in ways that increase achievement and failing to provide placement officials with useful information that would aid their efforts to nurture student promise. If test construction pre-ordains that test results mirror the past, then our understanding of an individual student's performance, the size of racial test score gaps, and the pace of change for individuals and for groups is likely to be wrong. And if test construction strategies limit educators' opportunity to teach students in ways that both increase achievement and test scores while masking important information from placement officials, then the institutions whose job it is to increase individuals' achievement are not well-served by standardized testing. I submit that these implications are real, and rely on a largely theoretical (as opposed to empirical) analysis to make the point. Note that this particular discussion serves as an illustration of the complexities of evaluation, complexities that, though different, can be found and may have the same effect in non-standardized evaluations (e.g., teacher grading) as well.

It can be useful to distinguish two different types of standardized tests—*norm-referenced tests* and *criterion-referenced tests* (e.g., Anastasi, 1988; Heubert & Hauser, 1998). Tests for college admission, as well as most intelligence tests, are norm-referenced tests. In contrast, the National Assessment of Educational Progress (NAEP) trend assessment tests used to great effect to estimate gaps in measured achievement are criterion-referenced tests. For our purposes I am interested in common differences between the procedures, and the emphases given different procedures, in constructing the two different types of tests. For the sake of brevity, then, I will set aside the many

adjustments test-makers may make in producing a given kind of test, adjustments that may blur the useful but easy to overstate, distinction between norm- and criterion-referenced tests during the test construction phase.

Norm-referenced Tests

Many tests commonly used for admissions decisions, such as the SAT-I, the Graduate Record Exam (GRE) General Test, and other tests for placement in gifted and talented programs, are norm-referenced tests. To construct such a test, item-writers draft a set of candidate questions (CQs) and administer them to a test-taking population. For the SAT-I the administration of candidate questions is typically done as part of the testing process, such that every SAT-I test-taker answers some candidate questions that will be evaluated for future use. Test-takers' performance on candidate questions are not used in the calculation of their scores.

After the testing has been completed, analysts evaluate how the candidate questions performed. There are two key aspects to this evaluation. The first key aspect of the evaluation concerns which students answered the candidate questions correctly. If test-takers who obtained low scores on the existing test were more likely to answer a candidate question correctly than did test-takers who obtained high scores on the existing test, then the candidate question is rejected because it does not differentiate effectively between high and low scorers.

The second key aspect concerns whether a candidate question was answered correctly by too many or too few test-takers. If too many answer the candidate question correctly, the CQ is judged to be too easy; similarly, if too few test-takers answered the question correctly, the CQ is judged to be too difficult.

Important assumptions are embedded in and activated through these procedures, assumptions that undercut the value of using norm-referenced tests in comparisons between individuals, groups, and cohorts. The main advantage of these assumptions is that they allow analysts to avoid having to specify exactly what the tests measure. This was deemed to be an advantage for intelligence testing because early researchers could not agree on a definition of intelligence (Herrnstein & Murray, 1994). However, researchers continue to disagree, and this disagreement has preserved support in some quarters for norm-referenced construction of intelligence tests. More important, these same techniques have been applied to construct high stakes tests for postsecondary school admission and other admissions decisions (e.g., gifted and talented programs). Because these techniques have been used to construct a key indicator used in college, graduate school, and special program admission, it is important to assess the advantages and disadvantages of using these tests as indicators of readiness for college preparatory, college-level, or graduate-level work.

The first key aspect in the test evaluation process requires that candidate questions differentiate between test-takers such that low-scorers on the previous test are less likely

to correctly answer the question than are high-scorers on the previous test. This requirement makes it likely that test-takers who master material in an order different from that either expected by the test-makers or common in the population will be penalized. Such test-takers may correctly answer a question that, by their performance on the rest of the test, they should not be able to answer. If there are many such test-takers, the item will be rejected. That test-makers who use norm-referenced approaches reject candidate questions every year on this basis suggests that the procedure may very well penalize many students inappropriately.

This procedure is problematic for many policy questions, but with specific reference to identifying promising racial minorities the problems are many, subtle, and potentially important. Any procedure that rejects a question that students on the bottom of the prior test score distribution are more likely to answer correctly than those on the top simply *because* those on the bottom of the prior test score distribution were more likely to answer the question correctly than those on the top is, by definition, discriminatory. The procedure is discriminatory because it trumpets or disregards achievement simply by virtue of who accomplished the achievement, rather than focusing on the content of the achievement produced.

Note also that this procedure has not been deemed a classic case of *racial* discrimination. However, given that on prior tests Black students have scored lower on average than have White students, the procedure of not counting a question when students on the bottom of the previous tests' distribution outperform students on the top of the previous tests' distribution will likely have a disparate and negative impact on Black students' scores.

Finally, because this test construction criterion heightens the spread of student scores, it may magnify small differences between students. Subtle systematic differences in student performance may be transformed into large gaps in student scores. This may make it difficult to identify promising students of under-represented groups, because the scores will seem to indicate large differences in performance between minority and non-minority students. In this way norm-referenced approaches may, perhaps inadvertently, legitimate differences in treatment of students, differences in treatment that may, over time, magnify the original small difference in student achievement.

The second key aspect of the evaluation process requires that analysts identify whether too many or too few test-takers answered the question correctly. To evaluate whether too many or too few persons answer the question correctly, analysts operationalize the terms "too many" and "too few" by imposing a distributional assumption, i.e., by making some assumption of how many persons *should* obtain particular scores. Often analysts assume that the scores will form a normal distribution, but it should be noted that any distributional assumption remains an *assumption*. Two observations need be made in this connection.

First, norm-referenced approaches essentially require each new version of the test to produce the same aggregate patterns as previous versions provided. The new test is

legitimated as an appropriate indicator of capacity or achievement by highlighting the similarity between the results obtained with the new test and the results obtained with the previous test. However, the previous test was legitimated by highlighting the similarity between its results and those of even *older* tests. It is obvious that a process of infinite regress is underway. Note, however, that if tests are legitimated with reference to the similarity of scores when matched with earlier tests, and test producers are able to select items for tests with that aim in mind, it is quite possible that tests so produced will mask changes that might be occurring in the actual (as opposed to assumed) distribution of achievement in the population.

Second, it is important to note that the assumption that cognitive achievement forms a normal distribution is an *assumption*. Even if the assumption is articulated with reference to the ease with which normal distributions can be statistically manipulated, there may be costs to the assumption. For example, given the widespread availability of schooling, one might actually expect the distribution of test scores to be skewed upward rather than symmetric. If so, it would be clear that the *a priori* distributional assumption may lead to a distorted picture of the cognitive achievements of students. Moreover, if an *a priori* distributional assumption is maintained, one may argue that key assumptions embedded in norm-referenced test construction procedures are actually at variance with the theoretically expected distribution of achievement, given the availability of schooling that should raise the lower levels of achievement and thus render the distribution of achievement asymmetric. The implication of this observation is that the lack of evidence in favor of a normal distribution assumption (or, indeed, any particular distributional assumption) means that common observations of normal and near-normal distributions are probably an artifact of test construction procedures.

This is potentially important because forcing the measurements of cognitive achievement to match a pre-specified distribution necessarily transforms the effort to measure a population characteristic—students' academic performance—into a zero-sum statement of the rankings of individuals and groups. This implication is potentially very important for groups that have been at the bottom of the test score distribution. Such approaches likely slow any increase in the test scores of disadvantaged groups regardless of how much better they may actually be performing.

Criterion-referenced Tests

The tests used as part of NAEP, the test used in the National Adult Literacy Survey (NALS), and the ACT are all more criterion-referenced than the tests discussed above. To construct criterion-referenced tests, item-writers define the domain of the content area. They then construct candidate items, draw on the judgments of experts, and in this manner determine which concepts and questions are likely to be more or less difficult. Judgments of difficulty are made to increase the chance that the test will sample from the full range of the content or skill area.

In addition, analysts often establish benchmarks that link different levels of test performance to explicit, real-world, competencies. Although analysts may use student performance on pre-tests in the construction of these benchmarks, ideally the benchmarks serve as anchors that do not shift just because student performance changes over time. An example of such benchmarking is provided in the NAEP trend assessment for mathematics, which identifies 5 levels of mathematics competence: (a) Simple Arithmetic Facts, (b) Beginning Skills and Understandings, (c) Numerical Operations and Beginning Problem Solving, (d) Moderately Complex Procedures and Reasoning, and (e) Multi-step Problem Solving and Algebra (Educational Testing Service, 1997).

A potential disadvantage of criterion-referenced tests is that they require test-makers to state explicitly just what is being tested. Given that there is no clear consensus on what constitutes proper preparation for gifted and talented programs, college admission, or graduate school entry, it might be difficult to quickly construct a criterion-referenced test to measure preparation for such placements. However, over time one might be able to develop a consensus, although that consensus might define sufficient preparation quite broadly. Regardless of the content, such a consensus might greatly facilitate students' successful preparation for doing advanced work, by communicating to them and their caretakers (e.g., parents, teachers, and other school personnel) in an explicit manner what skills are required for successful performance.

Possible Implications

Again, I have painted the above distinction with a broad brush. Certainly, test-makers can use procedures associated with norm-referenced test construction in producing criterion-referenced tests, and vice versa. Despite these complexities, however, the norm-referenced/criterion-referenced distinction is an empirically valid one, in that procedures used to create norm-referenced tests proceed with some very particular assumptions that differ from many assumptions commonly invoked in creating criterion-referenced tests.

The implication of the foregoing observations is that norm-referenced tests are anchored in several very problematic bases for those interested in nurturing the achievement of all students and especially students from under-represented groups. There are, of course, some advantages of these assumptions. The idea that achievements will fall into an *a priori* distribution allows candidate questions or even whole tests to be accepted or rejected on the basis of whether they produce the *a priori* distribution. Further, if one is interested primarily in legitimating a rank order of students, a process that reproduces the same rank order over time has certain possibly political advantages. Yet, if the aim is to identify promising students and nurture their success, approaches constructed with explicit attention to the domain of inquiry, *regardless of the implications for the distribution of scores*, have much to offer.

One feature such approaches often offer is benchmarks linked to real-world competencies. Benchmarks are potentially very useful for educators, for benchmarks

may facilitate teachers' efforts to convey to students and parents just what skills students need develop. It is important to note that no such benchmarks are widely available for the SAT-I and the GRE. Hence, criterion-referenced approaches are more likely to provide information about the skills tested than are norm-referenced approaches.

The decision to rely on norm-referenced tests may, therefore, inadvertently reduce the information available to students most in need of receiving an indication of what they must do and how they must orient to achieve. In contrast, criterion-referenced tests can provide information that teachers and other school personnel may use to construct and explain their pedagogy. If the criterion-referenced test is sound, then when students learn to succeed with respect to the test they will also likely learn important skills. In contrast, norm-referenced tests need not be based on a theory of what is important to learn. Thus, their use in schools may do much harm, possibly mystifying rather than clarifying what counts as achievement.

Finally, when it comes time to identify students for placement in gifted and talented programs, college admission, or graduate school, tests that allow placement officials to identify students meeting *a priori* benchmarks that reflect explicit understandings of what is required for acceptable performance have real advantages. Such tests may allow officials to make decisions more consistent with nurturing the capacity of every student who shows promise of benefiting from a demanding educational experience and of reaching levels of competence that would be sufficient for the task under consideration. It is not necessary to argue that criterion-referenced tests are a panacea; the devil *is* in the details for all test construction. But, well-designed criterion-referenced tests with benchmarks to acceptable levels of performance do have the advantage of conveying to key constituencies (e.g., teachers, parents, students, and placement officials) what children need to be taught and need to learn to reach heights of academic accomplishment. And, as schools are a focal site primed to convey what it means to be academically accomplished, any mechanism that might facilitate such communication is worthy of serious consideration.

Placement: The Illustrative Case of High School Tracking

High school tracking provides an illustrative case of the second feature of schools, placement. Tracking is one of several placement issues in schools, and, with respect to racial inequality, the issue of tracking may be divided into two distinct sets of questions. First, are track systems more common, rigid, or pronounced in racially and/or socioeconomically diverse schools? Second, are Black and Latino/a students more likely to occupy disadvantageous tracks than are Asians and Whites?

Consideration of these questions occurs at a potentially pivotal moment, as understandings of tracking are changing to reflect a more complex and changing in-school reality. As I have elsewhere described (Lucas, 1999; Lucas & Berends, 2002a), prior to the mid-1960's, a small set of over-arching programs existed at the high school level (e.g., Cicourel & Kitsuse, 1963; Conant, 1967; Hollingshead, 1949). Upon entering

high school, students were assigned to one of these mutually exclusive programs that determined their course-taking for the three or four years of high school.

Under this regime, schools seemed to allow little track mobility (Rosenbaum, 1976). Further, the institutionalization of track assignment should have constrained students' course-taking across subjects based on their track assignment. It appears that in this environment, many analysts came to regard a school with curriculum differentiation as a school that tracked students.

Yet research now suggests that this traditional system of tracking was dramatically transformed in the late 1960s and early 1970s, a period during which many urban school systems appear to have retreated from assigning students to mutually exclusive, all-determinative, over-arching programs. Instead, students enrolled in courses in different subjects, and the courses were vertically differentiated (Moore & Davenport, 1988). This transformation has been termed the unremarked revolution in school practice, in that "its occurrence has been noted but its implications . . . have been incompletely recognized" (Lucas, 1999, p. 1).

General Unrealized Implications

There are several unrealized implications of this change. One implication is that analysts need to study the patterns of track mobility anew. With respect to track mobility, formerly analysts believed that track mobility was rare and followed a pattern of tournament mobility under which one fall from the top tracks was sufficient to foreclose future high track work (Rosenbaum, 1976). Yet research suggests that track mobility is fairly common, and although downward mobility predominates, upward mobility is too common to accommodate a tournament mobility vision (e.g., Lucas, 1999).

A second implication is that student course-taking may be structured in complex ways given the decline of formal programs. Recall that the development of formal or classical tracking was in part an effort to differentiate the social psychology of two different groups of students. Students in the high track were being taught to lead, whereas those in the low tracks were, the thinking went, being taught to follow (e.g., Finney, 1928). Such divergent socialization would be facilitated by systems in which students did not mix across tracks. However, with the decline of formal programs, such mixing is possible in principle. Research suggests that such mixing does occur (e.g., Lucas, 1999), but more research on whether different types of schools have different kinds of mixing remains important.

A third implication bears on the issue of meritocratic placements. When students were assigned to different over-arching tracks, it would be difficult to fine tune placements if students' achievement varied across subjects. However, now that formal programs are far less common, it is possible to fine tune placements to some degree. This raises the question of whether placement in a subject is dependent on achievement in that

subject primarily, or whether other factors predominate. Some evidence indicates that both mathematics and English achievement matter for both mathematics and English placements. However, although mathematics matters more than English for placement in math, mathematics achievement is also more important for English placements than is English achievement (Lucas, 1999). Given that the English test was more reliable than the mathematics test, and that the English and math tests had similar variance, the finding seems secure. Yet further research is needed to probe this issue, especially research focusing on whether other subjects show similar patterns.

Each of these issues is important in itself, but also is a potential issue with respect to the performance of minority students. Some research suggests that Blacks and Latino/as navigate a different track mobility regime than do Whites (Lucas & Good, 2001). This research shows that the patterns are different, and the difference cannot be explained by social class. Yet, exploration of other individual-level and school-level factors that might underlie the difference has yet to occur. Lucas and Good (2001) speculated that the upward track mobility of Whites might depend on the presence of Blacks and Latino/as in the school, but further work to assess this speculation has not been done.

At the same time, analysis of the role of complex course-taking patterns on student self-efficacy, and whether the impact varies by race, class, and/or gender, has also not occurred. This would seem a ripe area for further inquiry. Although we know some factors that determine student expectations (e.g., Hauser, Tsai, & Sewell, 1983), much of that research occurred prior to the change in school practice. Now that students may take courses of different levels across subjects, further research is needed to ascertain whether and how the determinants of student expectations may have changed in the new environment.

Finally, the issue of whether achievement in different domains has the same impact for students of different races would seem a straightforward extension of the question concerning whether placement is based on achievement in the particular domain within which placement is occurring. Again, this issue has yet to be fully explored.

All three of these implications of the change in school practice are general, possibly touching every student in schools. Yet, each may also produce useful knowledge if issues of minority achievement are raised in the context of these general implications. It is apparent that much work remains to be done both with respect to all students and with respect to the experience of minority students.

Track Structure

More specific to the issue of race and tracking, however, is the first question raised at the outset of this section on placement, namely, are track systems more common, rigid, or pronounced in racially and/or socioeconomically diverse schools? One unrecognized implication of the change is that a school with curriculum

differentiation may have neither *de facto* nor *de jure* tracking. *De jure* tracking exists when schools have registration procedures that assign students to over-arching programs that determine their course-taking in academic subjects. And, *de facto* tracking exists when, absent such institutional procedures, students' levels of study in disparate subjects remains associated. Thus, after the unremarked revolution, curriculum differentiation may or may not eventuate in *de facto* tracking.

In most schools, the differentiated curriculum continues to exist. But a differentiated curriculum no longer implies tracking, given changes in school practice. In these circumstances, it is imperative to distinguish between curriculum differentiation and tracking, and to devise methods to study the issue of whether tracking systems differ according to the race and class composition of the school.

Limited research has been conducted on this question, but analysts have articulated different perspectives on the issue. Oakes (1994a, 1994b) has suggested that a race-coded hierarchy reinforces stereotypes and perpetuates disadvantage, and that this occurs by virtue of middle-class Whites' championing tracking as a pedagogical strategy, a strategy that also serves to forestall within-classroom race and class integration. Oakes suggests that the real motivation behind White middle class support for tracking may be to maintain race and class segregation.

In contrast, consider that in order for curriculum differentiation to result in advantages in efficiency and pedagogy, assignments of students to courses must be made on the basis of prior achievement in the relevant subject. Ostensibly this is possible, for secondary school curriculum differentiation in the absence of formal programs allows students to be sorted for math according to their prior achievement in math, to be sorted for English according to their prior achievement in English, and so on.

Note, however, that students' achievement in different subjects is correlated. Thus, if students enroll in levels of coursework owing to their levels of achievement in each subject, it is quite possible that students will find themselves in similar levels of courses for different subjects, because their achievements in different subjects are associated. Thus, even where subject-specific achievement is the only determinant of placements, the association between students' prior achievement in different subjects can create a *de facto* tracking system. The big question, therefore, is whether one can discern a connection between the racial composition of the school and the track structure after accounting for the degree to which students' prior achievement in disparate domains is correlated.

Two early efforts to study the role of race and class in track structure documented a potentially important role for school diversity. Braddock (1990) found that the mix of Black and White students was associated with the track structure of the school, and Lucas (1999) found that the more socioeconomically diverse the school, the more pronounced the tracking system. However, neither study controlled for the key competing explanation—the distribution of student achievement.

Lucas and Berends (2002a) studied 1980 sophomores and 1981 juniors and found that once the profile of student achievement is controlled, there is an association between social class diversity and racial diversity on the one hand, and the degree to which the tracking system is pronounced on the other. In other words, public school systems with more racial diversity or socioeconomic diversity have more pronounced tracking systems, even after the profile of student achievement is controlled. Interestingly, Lucas and Berends found no effect of social class or racial diversity for private schools.

One caveat to the study is that they used High School and Beyond (HS&B) data, which is over two decades old. Unfortunately, the more recent National Education Longitudinal Study (NELS) design does not allow researchers to generalize to the high school (Ingels, Scott, Taylor, Owings, & Quinn, 1998), so that it was impossible to update the analysis with a more recent cohort. Hence, we will have to await better, more recent, data to re-assess the role of racial diversity and socioeconomic diversity in tracking.

Track Placement and Effects

Still, it appears that track systems may be partially a result of school diversity. If so, how do students of different races fare under tracking, and what are the implications of their navigation of tracking systems for the achievement levels of students of different races? To answer these questions one must first note that simply comparing students of different tracks may fail to accurately estimate the effect of tracking. Students are not randomly allocated to track positions. Therefore, one must account somehow for the process by which students are allocated to tracks, before estimating the effect of track location on outcomes.

One such study that effectively estimated the effect of tracking indicated that placing students of equal achievement in different tracks leads to a divergence of performance, with those in more demanding tracks outpacing their lower-track peers (e.g., Kerckhoff, 1986). Kerckhoff had data that allowed him to observe students before their assignment to different streams in Britain. This result has been replicated using data in the United States and using methods, such as endogenous switching regression, that statistically account for students' assignment to different track locations (e.g., Gamoran & Mare, 1989; Lucas & Gamoran, 2002).

These analyses suggest that placement in lower tracks may stifle cognitive growth, while placement in higher tracks may nurture cognitive growth. These results are consistent with ethnographic evidence on the pedagogical strategies common in the different track locations (e.g., Gamoran, 1993; Page, 1990). Given the evidence of divergence, we may presume, at least provisionally, that differential placement may be implicated in racial differences in achievement. Thus, we may ask first whether placement differs by race, and then re-visit the question of whether placement seems implicated in race-linked differences in achievement.

Oakes' (1985) analysis of a small nationally-representative sample of schools shows Black and Latino/a disadvantage in track placement. Mickelson (2001) analyzed schools in the Charlotte-Mecklenberg school system in the late 1990s and revealed Black disadvantage in assignment to college preparatory tracks and advanced classes. Therefore, if performance divergence does occur, the disadvantage in placement could lead to lower levels of performance for Black students compared to Whites.

Other research, however, shows that tracking may *reduce* racial differences in measured achievement owing to minorities' advantageous placements in track systems (e.g., Gamoran & Mare, 1989). Garet and DeLany (1988) show that Blacks and Asians in four California districts were *more* likely to enter college preparatory courses than were Whites. And Gamoran and Mare (1989) and Jones, Vanfossen, and Ensminger (1995), using nationally representative data from the early 1980s, show that Blacks were *more* likely to enter college preparatory placements and courses than were Whites. If this occurs in the context of diverging performance owing to track placement, tracking might serve to *decrease* racial differences in achievement, as, conditional on other factors in the model such as prior achievement and social class, more Blacks than Whites enter the college preparatory track.

More recent research, however, suggests the relation between race and track assignment is changing in complicated ways over time. Lucas and Gamoran (2002) studied 1980 and 1990 sophomores and found consistent Black-White parity in prospects for high track placement, net of social background and prior achievement. However, Lucas and Gamoran also found a Latino/a disadvantage in 1980, Latino/a, Black, and White parity in 1990, and a 1990 Asian advantage in track assignment. These results led to the conclusion that race continues to matter in track placement. What changed between 1980 and 1990 appears to be the dominant racial/ethnic group, but race remains a predictor of track location throughout the period.

Lucas and Gamoran (2002) also simultaneously studied mathematics achievement to estimate the effect of track location after accounting for students' non-random assignment to tracks. Lucas and Gamoran found that there was net Black-White parity in track assignment. Yet Whites in the lower track outpaced their Black peers in the lower track more than Whites in the higher track outpaced Black peers in the higher track. Hence, the placement of students into tracks exacerbated the Black-White achievement gap, compared to a system in which all students would have been placed in the college preparatory track. Although making inferences about such a drastic regime change on the basis of such models is not ideal compared to an experimental test, the results are consistent with smaller Black-White gaps in achievement were every student placed in college preparatory courses. This result suggests that the issue of tracking and achievement is quite complex, such that even if there is *no* racial gap in assignment probabilities, tracking can still serve to increase racial differences in achievement owing to differences in performance in the different tracks. This result implicates tracking as one mechanism likely to increase racial differences in achievement.

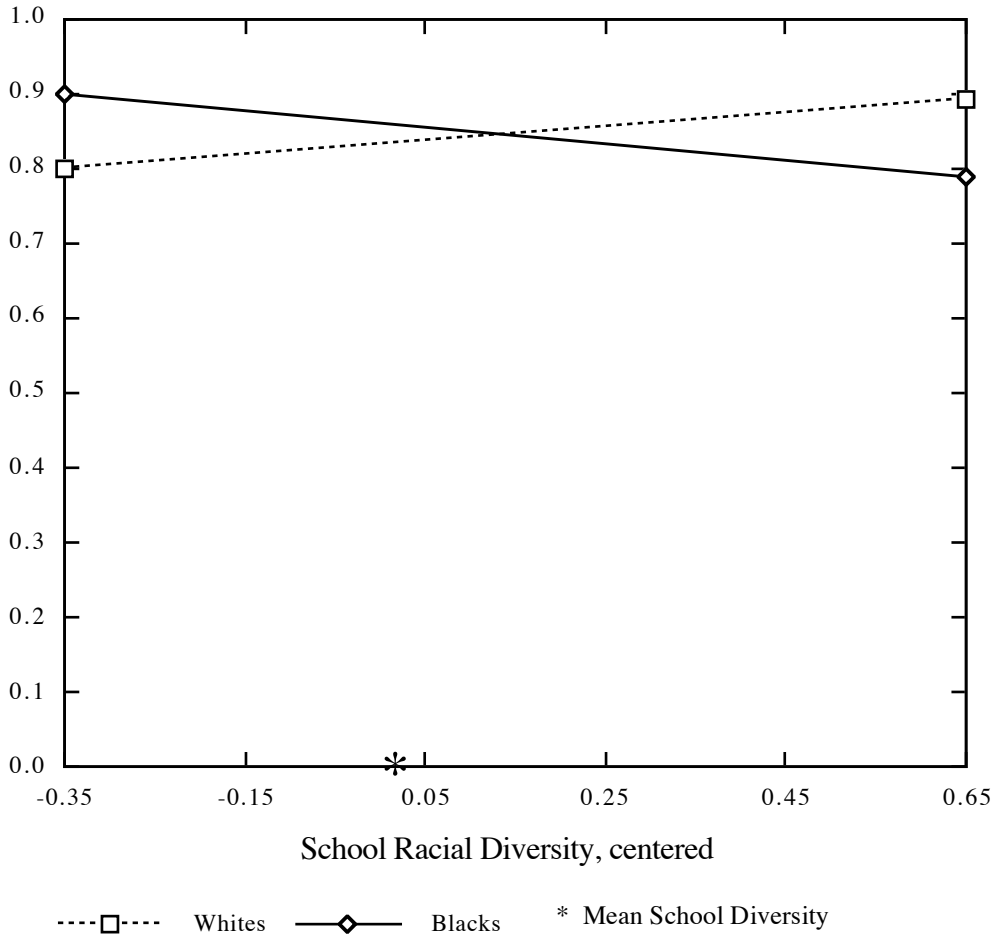
Institutional Variation in Placement Patterns

One limitation of the Lucas and Gamoran (2002) study, however, is that it did not fully explore school-to-school variation that might further elucidate the role of race in tracking. Exploring cross-school variation is important. Different analysts have obtained a wide variety of findings with respect to race and track assignment. One explanation for the varied findings is that schools differ. If so, obtaining a national point estimate of the racial gap in track placement may obscure important social determinants of track placement. It might be useful to search for school-to-school variation in track assignment by race, and to explore any systematic differences that might explain such school-level differences.

Lucas and Berends (2002b) investigated whether there is school-to-school variation in the racial gaps in track placement. They found evidence of school-to-school variation in the Black-White gap, and then proceeded to investigate several possible explanations for the cross-school variation, including school poverty, school governance, faculty racial diversity, a legacy of racial conflict, and student racial/ethnic diversity. Of these, little support for school poverty, faculty racial diversity, or a legacy of racial conflict emerged. However, the most powerful predictor of student track placement was school diversity.

Lucas and Berends (2002b) presented a figure showing how the prospects for college prep track assignment varied according to the amount of racial/ethnic diversity in the school for Black and White students with mean achievement and of mean socioeconomic status. In Figure 1, I adapt the Lucas and Berends figure to show the probabilities of college prep track assignment for White and Black students with mean socioeconomic status, but two standard deviations above the mean on measured achievement in mathematics, science, social studies, reading, writing, and vocabulary. By re-drafting the figure for students with higher achievement test scores, I aim to focus attention on some of the most promising Black and White students.

As Figure 1 indicates, Black students in mono-racial schools have a 90% chance of being in the college preparatory courses. In contrast, White students in mono-racial schools have an 80% chance of being in the college preparatory courses. However, as schools become more racially diverse, the prospects for Black students decline, while the prospects for White students increase. Once students are in schools with the maximum amount of racial diversity (which would be a school with two or more groups of equal size), Black students have about a 79% chance of college prep placement, whereas White students have about an 89% chance of college prep placement.



*Adapted from Lucas and Berends 2002b, *Race and Track Assignment in Public School*.

Figure 1. Predicted probability of college prep track assignment, for Blacks and Whites, by high school diversity.*

Lucas and Berends (2002b) note that their analysis cannot identify the mechanisms behind this pattern of results, but emphasize that the pattern is consistent with a process wherein White students crowd equally deserving Black students out of more demanding courses in more diverse schools. They write:

> Perhaps anti-intellectualism among Black students in diverse schools, owing to the ostensible connection between acting White and academic achievement, leads Blacks in such schools to avoid challenging classes (e.g., Fordham & Ogbu, 1986). Although researchers have begun to intensely examine the "acting White" thesis and in doing so have considerably weakened its persuasiveness (e.g., Tyson, 2002; Ainsworth-Darnell & Downey 1998; Cook & Ludwig, 1998), it may still provide a viable explanation for track location differences by race. This remains an empirical question of some import.

> Alternatively, perhaps school personnel are pressured by parents in-the-know and, in response, place White students ahead of Black students in the queue for advantageous curricular positions. This is an obvious possibility, and one consistent with how we know schools often operate (e.g., Useem, 1992). Further research will be needed to discover whether discriminatory allocational processes explain disparate track locations for comparable Black and White students. (Lucas & Berends, 2002b, pp. 31-32)

This pattern of results suggests most immediately that students' prospects for demanding instruction vary in part according to the racial/ethnic composition of the school. At the same time, the evidence also suggests that some schools treat Black and White students equivalently, whereas others treat them very differently. This news suggests a national point estimate does obscure some important information analysts and policymakers might need to design effective pedagogical structures for all students. It may be advisable to study schools with different patterns of race and track assignment, including some schools where Blacks are advantaged in comparison to Whites, some where Blacks are disadvantaged compared to Whites, and some schools where there is parity. Studying such schools directly may aid analysts in identifying whether and how these schools operate differently, and speed determination of what practices might encourage promising students of whatever race to enter and excel in demanding curricular locations.

Progression: The Illustrative Case of Educational Transitions Research

A final illustration addresses the issue of progression. Research on high school dropouts, grade retention, track mobility, and graduate school entry are all concerned with the issue of student progression (e.g., Kominski, 1990; Lucas & Good, 2001; Mullen, Goyette, & Soares, 2003; Roderick, 1994). These research efforts focus usefully on parts of the educational attainment process, while other research, such as that of educational attainment, considers several stages of students' educational progression simultaneously.

Unbeknownst to many, research suggests that Black students are more likely to graduate from high school, and more likely to enter college, than their socioeconomically and cognitively similar White peers (e.g., Lucas, 1996), although there are small gross differentials between Blacks and Whites and larger ones between Whites and non-White Latino/as (e.g., Kominski, 1990). In contrast to this complexity, wherein the gross differentials disadvantage Blacks, but the net differentials advantage Blacks, effects of socioeconomic background often seem far more clear. Socioeconomic differentials remain of great interest to researchers. Further, research on social background effects often has implications for improving the lot of minority children. To convey those implications it will be useful to relate a stream of research on educational attainment that is concerned with the accumulation of years of schooling year-by-year.

This "education transitions" line of research began as a response to one of the major questions analysts have considered, namely, whether the effect of social background on educational attainment varies across cohorts and/or cross-nationally. Answering this question has proven more difficult than it first appeared. A major difficulty arose because if one regressed years of school completed on social background variables, and compared the coefficients, one might mis-estimate cross-national or cross-cohort differences in the relationship between social background and educational attainment. This problem arose because ordinary least squares (OLS) coefficients reflect not only the level of association between independent and dependent variables, but also the variance of the variables. Because the expansion of education altered the variance of educational attainment over time (and thus cohorts) and possibly exacerbated cross-national differences, analysts could not compare OLS coefficients across different cohorts or countries to investigate possible differences in the social background/educational attainment relationship. To obtain parameter estimates that might be compared across cohorts, Mare (1980), drawing on the work of Fienberg and Mason (1978), proposed that analysts treat education as a series of transitions or school continuation decisions. Mare reasoned that total years of school completed is the result of a series of decisions to stop or continue schooling. Each decision can be viewed as a binary variable scored 1 for students who continue and 0 for students who stop. Equations 1 through 17 reflect this view of the attainment process:

$$1)\quad Pr(y_1 = 1) = \frac{e^{(X'\beta_1)}}{(1+e^{(X'\beta_1)})} \quad + \quad \varepsilon_1$$

$$2)\quad Pr(y_2 = 1 \mid y_1 = 1) = \frac{e^{(X'\beta_2)}}{(1+e^{(X'\beta_2)})} \quad + \quad \varepsilon_2$$

$$\begin{array}{cccc} . & . & . & . \\ . & . & . & . \\ . & . & . & . \end{array}$$

$$16)\quad Pr(y_{16} = 1 \mid y_{15} = 1) = \frac{e^{(X'\beta_{16})}}{(1+e^{(X'\beta_{16})})} \quad + \quad \varepsilon_{16}$$

$$17)\quad Pr(y_{17} = 1 \mid y_{16} = 1) = \frac{e^{(X'\beta_{17})}}{(1+e^{(X'\beta_{17})})} \quad + \quad \varepsilon_{17}$$

Mare's solution not only made comparisons of coefficients across cohorts and nations meaningful, but also facilitated investigation of possibly changing effects across *transitions*. Analysts have compared logit coefficients across transitions to discern whether social factors have different effects at different points in the educational system in over a dozen nations, and they have obtained a nearly universal finding—logit coefficients for social background decline across transitions, suggesting that the direct effect of social background wanes (e.g., Buchmann, Charles, & Sacchi, 1993; De Graaf & Ganzeboom, 1993; Garnier & Raffalovich, 1984; Müller & Karle, 1993).

This line of inquiry connects to the issue of minority achievement primarily through the theories developed to explain the findings researchers have obtained. One such theory argues that the findings are merely a statistical artifact owing to a technical failure to identify the model (Cameron & Heckman, 1998). These analysts re-estimate models for native-born White males in the United States, and conclude that there is no waning effects pattern, and, further, that credit constraints—i.e., the limited access to financial markets for youngsters lacking collateral—play a minor or perhaps even no role whatsoever in constraining college opportunities.

In response, Lucas (2001) re-investigated the issue of education transitions and found it possible to statistically identify the coefficients of interest by making the innocuous assumption that grades matter. Further, the findings supported a theory of Effectively Maintained Inequality (EMI), which claimed that:

> socioeconomically advantaged actors secure for themselves and their children some degree of advantage wherever advantages are commonly possible. On the one hand, if quantitative differences are common, the socioeconomically advantaged will obtain quantitative advantage; on the other hand, if qualitative differences are common the socioeconomically advantaged will obtain qualitative advantage. (Lucas, 2001, p. 1652)

In essence, with respect to educational attainment, the theory implied that wherever there are common differences in the amount of schooling (e.g., more years of school versus fewer) the socioeconomically advantaged will obtain more. But, whenever the common differences approach zero (e.g., the vast majority of students graduate from high school) the socioeconomically advantaged will secure qualitatively better schooling at that level (e.g., higher track placements), which will provide higher quality schooling *and* which can also effectively open doors for later placements. Hence, the theory focused on the ability of socioeconomic background to move students over qualitative thresholds at one level, thresholds whose navigation might have implications for placements in later years (e.g., college entry). Socioeconomic background effectively maintains inequality because it can move students over thresholds, even though the parameter estimate (e.g., regression coefficient or logistic regression coefficient) may appear small.

EMI theory found more support in the analysis than did the theory of Maximally Maintained Inequality (MMI) or a Life-Course Perspective (LCP) proposed by Raftery and Hout (1993), and Müller and Karle (1993), respectively. Although EMI was not articulated with respect to racial inequality, because EMI was described as a general theory of inequality in society, it may be applicable to the phenomenon of racial inequality.

The application to racial inequality appears relatively straightforward in its implications. If race operates in a manner similar to socioeconomic background, at least with respect to some goods, than we would expect that dominant racial/ethnic groups secure for themselves and their children advantage wherever advantages are commonly possible. If differences in the quantity of a good are commonly possible, dominant

racial/ethnic groups will secure the advantageous amount of the good. If qualitative differences are common, the dominant racial/ethnic groups will obtain the better types of goods.

This suggests, for example, that studies of progression (e.g., high school graduation and college entry) may misunderstand the role of race in success by treating graduation and college entry as binary outcomes. Were analysts to include in the dependent variable some indicator of the quality of the institutions from which students graduated and to which students matriculated for college (e.g, Mullen et al., 2003), we might no longer find that Black students are more likely to graduate from high school and enter college than equivalent Whites. More important, sensitizing the discussion of (socioeconomic and) racial inequality to the more systemic aspects of (socioeconomic and) racial inequality—aspects that normalize the efforts of members of dominant groups to secure goods for their children often outside the processes applied to others—could go a long way to transforming a system that research suggests has some clearly non-meritocratic aspects.

Effectively maintained inequality was articulated as almost a foregone conclusion. Yet, it is clear that culturally accepted practices, such as, for example, parents playing a role in students' education to the point of selecting teachers for their child, are pathways through which socioeconomic background works to maintain inequality. If so, a range of clear policy responses that might reduce the power of socioeconomic background and race is available. Such policies could be effective were they conscientiously applied, and if the likely development of counter-vailing responses was the subject of monitoring in an effort to make such responses themselves the focus of policy action in a timely manner.

Cross-cutting Issues for Research and Policy in the Areas of Evaluation, Placement, and Progression

Students are evaluated, either in a standardized or non-standardized manner. Those evaluations lead to placements. The process of evaluation and placement continues throughout the educational attainment process. Further, during that process, socioeconomically advantaged actors (and perhaps members of dominant racial groups as well) episodically act to secure advantages for their children. All this occurs in ways that imperil the academic success of socioeconomically disadvantaged students of whatever race, and minority students as well.

The odds against interrupting this process are large, but it can be done. Realization of the role of information in determining student success, and adjusting systems to provide more consistent and accurate information to students and other key actors, is a promising approach.

To that end, my work endeavors to both motivate and construct a more nuanced theory of how schools work in society. An over-arching frame for thinking about schools is provided by EMI theory. This frame encourages us to think about evaluation,

placement, and progress as interconnected pieces of a larger process of educational attainment. Further, at every point in that process social advantages, whether based on race or social class, allow some to agitate for resources and attention in ways that may crowd out other deserving students.

An implication of the theory is that, it is usually not overriding power that allows those with socioeconomic advantages, or members of racially dominant groups, to obtain attention for their concerns and their children. Indeed, why would one expect overriding power to be exerted in school regularly, and to be the common mechanism of student disenfranchisement in schools? Evidence suggests teachers are, for example, less likely to be racially prejudiced than members of other professional occupations (Lacy & Middleton, 1981). Further, few parents, even middle class parents, have sufficient resources as individuals to really force school actors to act in accordance with their wishes.

Designing policies to prevent the exercise of overriding power, while useful, can also become a distraction. Certainly overriding power *is* used in some situations, but the far more common scenario is that subtle taken-for-granted practices, coupled with greater knowledge about when and how to navigate the system, account for the way socioeconomically (and racially) advantaged members translate their out-of-school advantages into advantageous in-school placements and post-school outcomes for their children. Researchers and policy-makers need to focus attention on these practices, as well as on procedures that convey information, if they hope to interrupt the process whereby societal advantages become translated into unfair in-school advantages.

Key to that work would be in-depth knowledge about the way information can be transmitted and might be received. We already know a great deal about information flow. For example, we know that middle class parents in certain networks share information about teachers and classes, as well as strategies for advocating for placement of their children (e.g., Useem, 1992). Hence, a clear policy response would be to close the door to parent intervention in student assignment. But there are other possible responses, and these may be more promising. Rather than attempt to lower the ability of middle class parents to act, it may be more effective to raise the ability of non-middle class parents and their advocates to act for poor and minority children. Doing so, again, will require knowledge about information flow. Lacking important pieces of that in-depth knowledge, some realizations are clear.

It is clear that dominant evaluation approaches provide little information to students as to the basis of their performance and how to improve. It is clear that dominant evaluation approaches provide little more than a ranking to placement officials and often fail to provide more nuanced information that would aid in nurturing students' capabilities. Further, it is clear that dominant evaluation approaches may understate the performance of students from groups that have historically performed poorly and may slow group convergence of test scores over time. With respect to this last point, placement officials who know the general distribution of scores by student race as provided by dominant evaluation approaches may, over time, come to regard lower Black

achievement as normal and perhaps even to expect lower Black achievement. If school site actors behave in ways consistent with such lowered expectations, it can become very difficult to raise student performance as well.

Consistent with this observation, it is clear that even if students score at equivalent levels on tests of achievement, most schools fail to place Black and White students in equivalent curricular locations. Further, the pattern of placement is consistent with equally able Black students being crowded out of demanding instruction by White students as schools become more racially diverse. This pattern may be the ultimate result of hardened lowered expectations for Black students among school officials and students alike. If we believe that high track placements lead to higher levels of academic achievement, and the evidence suggests this is true, then a pattern consistent with Black students being crowded out of demanding classes as schools become more racially diverse is a possible explanation for lower Black achievement in the post-desegregation era.

It is clear that socioeconomically advantaged (and perhaps racially dominant) parents act to secure effective advantages for their children. It is clear that these actions occur throughout the educational attainment process. It should also be clear that once reform efforts begin, socioeconomically advantaged (and perhaps also racially dominant) actors adjust, attempting to re-create the advantaged positions threatened by the reform (e.g., Wells & Serna, 1996).

Before rushing forth to alter or increase information flow, therefore, it is important to learn from past reform efforts, so as not to inadvertently create new problems. The possibility of increasing the difficulties students have, or of failing to decrease them, is real. As an example, I have argued that changes in tracking between 1965 and 1975 reduced the information available to students about the implications of course-taking decisions (Lucas, 1999). Poor students were more vulnerable to this change than were middle class students. Middle class students of college educated parents did not need to rely on the school to advise them on course selection, because their parents, who went to college, were able to provide the necessary guidance. In contrast, poor students whose parents did not attend college were unable to turn to their parents for guidance in the course selection process, and thus needed the resources of the school, in the form of explicit information as well as counselors to provide it, to make up for their disadvantage. Research suggests, however, that school personnel have not acted in ways that would make up for poor students' disadvantage, as counselors appear to have retreated from this role (Rosenbaum, Miller, & Krei, 1996).

One response to this situation is to work to de-track schools or, more accurately, to end curriculum differentiation (e.g., Wheelock, 1992). But, if one believes information flow is vital to students' ability to allocate themselves to the most demanding instruction they are prepared to receive, "de-tracking" would be a step in the wrong direction. "De-tracking" would further obfuscate what occurs in classrooms, making it difficult for many students and their guardians to know how to navigate the curricular system. The only students likely to escape "de-tracking" unscathed would be students with middle class

parents tied into existing networks. Such networks would continue to work to channel information to middle class parents as to which teachers and classes would be best for their children (e.g., Useem, 1992), allowing these parents to position their children for the most demanding instruction possible. Other students might be left to take the leftovers.

A lesson from the 1965-1975 reforms and the discussion of de-tracking, is that an explicit, nuanced theory of schools and society is needed to focus reform efforts, else reform efforts may do more harm than good. And only an explicit theory that realizes both the ability of those threatened by reform to alter their practices in ways that will vitiate the reform, as well as the daunting array of locations from which such action can be undertaken, has any chance of increasing the academic achievement of disadvantaged students.

Concluding Remarks

Existing research suggests promising Black students face a series of difficult challenges. Evaluated with tools designed to sort and rank rather than recognize sufficient achievement, they encounter school personnel who may know only their percentile score at key moments in their education. Those school personnel, operating with the best of intentions, are also bombarded with information indicating that the vast majority of Black students cannot achieve, information constructed out of a process that aims primarily to rank rather than convey the profile of students' strengths and weaknesses. Should a particular Black student do well, they face the possibility of being crowded out of demanding courses the more racially diverse their school. Further, the more racially diverse the school, the more likely the tracking system will be pronounced, reducing the chance that students will be able to tailor their course-taking to their particular profile of strengths and weaknesses. Finally, all this occurs in a context that accepts the episodic acts of socioeconomically advantaged actors to secure advantages for their children.

Research to deepen our understanding about these issues is definitely needed. We need to learn more about how students think when they answer test questions. It is imperative that before we rush to embrace criterion-referenced tests, we conduct additional highly-detailed work to better determine the difficulty of items and the cognitive processes test-takers use (e.g., Hamilton, 1997). Only with such work will we build an edifice of standardized student evaluation that is designed to further our collective interests in nurturing the talents of every student. Criterion-referenced tests are a step in the right direction, but the journey has barely begun. There are many pitfalls that may undo an effort to move to criterion-referenced tests. Most notably, we should be wary of using criterion-referenced tests defended on the grounds that they produced the same distribution as norm-referenced tests produced. Still, at the very least, the example of criterion-referenced tests shows that it *is* possible to greatly reduce the use of what should be an obviously discriminatory procedure for test construction, namely, the use of an item's ability to preserve the prior distribution of test-takers in evaluations of item validity.

Further, we need learn more about tracking, as well as other issues of placement (e.g., special education, gifted and talented). A key set of questions requires the use of cross-school comparative methods. Unfortunately, with respect to tracking, the design for the more recent national data collection (NELS) makes comparing high schools inappropriate. As the amount of diversity in the nation has only increased, a pressing issue is whether this increasing diversity has had any impact on the patterns of student placement in schools. It is possible that the more recent Education Longitudinal Study (ELS), which fielded base year data collection in 2002, will allow a more contemporary investigation of these questions.

But other research is also needed. What individual-level factors improve students' chances of upward track mobility? How much school-to-school variation is there in students' course-taking patterns, and can it be explained (and perhaps manipulated) by school policy? What are the social-psychological implications of different tracking arrangements? How well is achievement within a domain connected to placement within that domain? These questions are all general, but each may also be pursued by attending to racial differences as well. I believe such questions constitute a promising agenda for research.

Although there are many additional research questions analysts need pursue, one final query stands out. Can the theory of effectively maintained inequality, articulated with respect to socioeconomic advantages, be translated into the area of race? And, if so, what are the implications of this theory for attempts to reduce and perhaps eventually eliminate racial inequality?

All these research efforts are useful, and concerted research effort may indeed help generate the momentum needed to change practices as well as the knowledge needed to change practice wisely. But the knowledge base to date also suggests that while more knowledge can be helpful, the essential ingredient for effective reform is the political will to propose it, enact it, sustain it, and then extend it in the face of rising oppositional efforts to sidestep, overturn, or overwhelm the reform. If that political will is present or can be generated, it will become possible to identify promising students of whatever race and nurture their achievement in ways that will ultimately eradicate race-linked differences in performance while perhaps raising the level of achievement of all students. Without that will, however, no amount of knowledge of how schools work in society will be sufficient to nurture this precious national resource—our children.

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