

THE NORTH CAROLINA EDUCATION

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# RESEARCH-BASED REVIEW OF REPORTS ON CLOSING ACHIEVEMENT GAPS

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*Report to the Education Cabinet and the  
Joint Legislative Education Oversight Committee*

April 15, 2002  
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# ACKNOWLEDGEMENTS

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I wish to thank Kati Haycock and Craig Jerald of The Education Trust, Lyle Jones of UNC-Chapel Hill, and Allan Odden of The University of Wisconsin for their thoughtful reviews of the recommendations outlined in Appendix B of this report, and Gary Henry of The Packard Foundation for sharing his knowledge of research on the use of public information campaigns as instruments of public policy.

I also wish to thank Ann McColl for her summaries of the reports under review as well as background research and draft material for several sections of the report; Amanda Bernhard for background research, draft material, editing, and sage advice; Tanya Conklin for background research, draft material, and fact-checking; Elizabeth Cunningham for writing material adopted or edited for several sections; Margaret Camp for extensive work with the bibliography, formatting, and editing; and Harold Wenglinsky for clarifying points from his article, cited in the bibliography.

Any omissions or errors of fact or interpretation remain strictly my own.

Charles L. Thompson

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## INTRODUCTION AND EXECUTIVE SUMMARY

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Section 8.28(i) of House Bill 1840 (General Assembly of North Carolina, July, 2000) called upon the Education Cabinet, through its Research Council, to review the findings and recommendations from some 11 recent reports concerning ways to close gaps in student achievement between the white majority and "various demographic groups who are performing below grade level." The legislation also called for the submission of research-based recommendations to the Joint Legislative Education Oversight Committee "on the most cost-effective methods of improving student achievement among the targeted groups." (A list of the 11 reports slated for review, with brief annotations on the purposes of each, is provided in Appendix A.)

This report from the Research Council is transmitted by the Education Cabinet in response to the legislation. The summaries of research findings and corresponding research-based commentary on policy directions contained in the report were developed by the Research Council staff, without specific guidance or endorsement from the Education Cabinet. The Education Cabinet will give careful consideration to the findings and commentary, but in the spirit of the legislative request, the Education Cabinet submits them to give the Joint Legislative Education Oversight Committee the benefit of the same research-based guidance that the Education Cabinet itself will consider.

The recommendations included in the reports designated for review are both numerous and extremely varied. Discussions with General Assembly staff indicate that the purpose of the legislated review was to seek assistance in developing a coherent picture of the various approaches which the General Assembly might pursue and of which of the approaches promise to be most effective and cost-effective. To develop such a coherent picture, instead of simply listing the recommendations and commenting on them one by one, Research Council staff wish to offer an organizing framework which addresses several broad strategies, and to summarize the research on each strategy. Then, in Appendix B, we summarize the specific recommendations advanced in the reviewed reports and comment on their advisability in light of the related research. This approach enables us to provide both a research-based way to "make sense" of the problem overall and more detailed comments on the recommendations that have come forward from the several groups.

Research offers reasonably solid guidance about the effectiveness of many of the strategies recommended in the reports, as well as others which the reports do not highlight. The general level of costs associated with each strategy can also be estimated in rough terms. But unfortunately, research on ways of closing minority achievement gaps is not advanced enough to point confidently to the most cost-effective strategies (National Research Council, 1999).

That is, research can tell us something about which strategies and approaches are likely to help close the gaps, but it cannot tell us what specific strategies will deliver the greatest "bang for the buck" in all communities, districts, and schools. This is true for at least three reasons:

- First, for only a few strategies -- including high quality, academically-oriented preschool programs and small classes in kindergarten through third grade -- is there evidence of robust effects across many different kinds of settings. Yet, research is not yet far enough along to provide precise information on the relative cost-effectiveness of even these strategies compared with other strategies (National Research Council, 1999).
- Second, there is considerable evidence that different strategies will work best in different settings. This is true in part because different communities, districts, and schools have different problems and needs. But it is also true because for even the

best strategies to work effectively, they must be implemented well, and implementation depends critically on the commitment and capacity of local educators to carry out an approach. As McLaughlin (1990) put it in summarizing over a decade of research on the implementation of education change programs, "Policy cannot mandate what matters most...what matters most to policy outcomes are local capacity and will (p.9)."

- And third, the effects of many gap-closing strategies seem to vary depending on the total mix of strategies at work in a given setting (National Research Council, 1999). Even strong strategies work in combination with others, not in isolation. So it is difficult to impossible to say exactly how cost-effective a given strategy will be because effectiveness will vary not only across districts and schools with different problems and strengths, but also across settings where different combinations of strategies are in use.

Research may offer only broad guidance concerning the specific strategies that local districts and schools should implement to close achievement gaps, but it points rather clearly to the main step that should be taken at the state level. Accumulating evidence from Texas shows that a state accountability system which disaggregates test scores by students' ethnic and socioeconomic background and offers incentives for districts and schools to close achievement gaps can set the stage for major changes. In the words of one recent report, such a system can prompt a "revolution in expectations" for student populations whose potential has seldom been fully realized (Skrla, Scheurich, & Johnson, 2000).

But another clear finding from the same research is that actually raising and fulfilling expectations school by school and student by student depends critically on the response of local school districts to the promptings from the state level. The state accountability system can create the climate to motivate improvement, but local superintendents, school boards, and community leaders must respond with commitment to get results; with careful analysis of their students' needs, of strategies that address the needs in a way that fits their own contexts, and of how resources can be allocated most effectively to meet the needs; and with close attention to implementation.

Our framework for reviewing the many and varied recommendations flowing from recent reports on minority achievement gaps is shaped by the foregoing characterization of research on the problem. That is, we begin by discussing what research suggests as the primary policy steps to be taken at the state level: to revise the ABCs system of accountability by adding incentives for closing achievement gaps and sanctions for failure to do so, to extend pre-K programs to all at-risk four year-olds, to reduce class size in grades K-3, and to improve teacher and administrator quality via improved preparation and professional development.

Recognizing the strength of the evidence, the General Assembly has already begun extending pre-K programs to unserved and underserved at-risk four year-olds and has launched an initiative to reduce class size in kindergarten. Following through on these measures will obviously require substantial additional expenditures over the coming years. Detailed projections of these costs have already been made by staff in the Governor's office, the DPI, and the General Assembly's Fiscal Research office. Especially in light of complications introduced by the new federal No Child Left Behind Act, making the right adjustments in the ABCs accountability system will be technically complex and time-consuming, but most of the costs can be defrayed with existing state resources and resources provided by the federal government. Expanding the supply of high quality teachers will obviously entail more enrollment-based expenditures for teacher preparation and professional development programs, but the steps we recommend to focus and strengthen these programs can be taken with small or no additional investments.

Next, we turn to research showing that school district leaders and district policies can play a crucial role in closing achievement gaps, and we argue that the role of districts is currently underemphasized and undersupported in North Carolina education policy. We propose that the General Assembly authorize a pilot project to help districts address achievement gaps effectively. The project should help selected districts do a detailed analysis of the achievement gaps in their schools, audit their current practices and allocation of resources, identify appropriate research-based strategies to address the specific gaps and problems uncovered by the analysis, develop plans to reallocate resources to carry out the strategies effectively, carry out the strategies, and make adjustments as implementation proceeds.

In other words, we recommend development and piloting of a new technical assistance capacity to help districts move effectively to close gaps. Some of the steps that districts should take would be district-wide. Research points to several gap-closing actions that are uniquely the province of the district level (for example, building the expectation of high performance for all students into the district's routine ways of operating, assigning students to schools in ways that reduce concentrations of disadvantaged and at-risk students, assigning teachers to schools in ways that assure that the neediest students get experienced and well-qualified teachers, and distributing resources among schools on the basis of student need). Research also points to many specific steps that individual schools and teachers can take to close achievement gaps. In addition to the district-level interventions they undertake, school district leaders can motivate and help schools to choose, adopt, and carry out research-based steps appropriate to their own specific needs and capacities. We outline these steps, as well. Piloting the technical assistance effort we propose would cost approximately \$300,000 per year for three years

The National Research Council's Making Money Matter: Financing America's Schools (1999) reinforces the broad claim that more resources are required to educate students placed at risk of low school performance by family economic disadvantage, minority status, limited English language proficiency, or handicapping condition. But the report also acknowledges that the research cannot yet specify how much more funding is required to educate these children successfully. Nor is it easy to sort out exactly how much additional funding North Carolina currently provides to local districts for these students. Funding flows through many different streams, and several of the funding streams support varied mixes of services to different populations. Though it is clear that additional funds are needed to extend pre-K services to all at-risk four year olds and to reduce class sizes in the early grades, research cannot tell us what level of added funding may be necessary for districts to implement the other steps that research validates as effective ways to close minority achievement gaps.

It is partly for this reason that we recommend funding a pilot program of technical assistance to selected districts. Such a pilot would not only help these particular districts do more with existing resources to close gaps, but would also help clarify the limits of what can be achieved through the reallocation and better use of existing resources, and where new resources will indeed be required. The question of whether existing resources are adequate to provide all students -- prominently including economically disadvantaged and minority students -- with a sound basic education has been debated extensively in the context of the Leandro lawsuit currently before Judge Howard Manning. Though we do not propose the technical assistance project in response to those legal proceedings, we believe that its results would prove helpful in resolving one of the major questions before the court.

In a nutshell, then, research cannot yet single out a set of gap-closing strategies that would be the most cost-effective ones for all districts, schools, and teachers across the state. But it does point to a small number of policy actions that should be taken at the state level to create a powerful environment for effective action at the local level. The Research Council recommends that the General Assembly and Education Cabinet take these state-level steps, including an adjustment in the ABCs accountability system to focus on closing the gaps, extension of pre-K

programs to all at-risk four year-olds, class size reduction in grades K-3, and strengthening the focus of university-based programs of teacher preparation and professional development.

Research also points to a number of different gap-closing steps from which districts, schools, and teachers should choose those best suited to their own needs and capacities. We recommend that the Education Cabinet request and the General Assembly support a pilot technical assistance project to help districts choose wisely among these research-based strategies, allocate resources to support them, and carry them out effectively.

## **STATE-LEVEL POLICY ACTIONS**

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- Accountability for Equitable Results
- Pre-K Programs for At-Risk Four Year-Olds
- Reduction of Class Size in Grades K-3
- Stronger Preparation and Professional Development Programs for Teachers and Administrators

### **Accountability for Equitable Results**

North Carolina and Texas have been widely cited as the two states making the greatest improvements in student performance during the decade of the '90s (see, for example, National Education Goals Panel, 1998). In addition to the broad progress made by both, Texas has been singled out for substantial reductions in minority achievement gaps (Hannaway & McKay, 2001; Skrla et al., 2000).

Between 1994 and 1999, North Carolina closed the gap in the percent of students at or above Level III between the white majority and both American Indian and Black students, but not for Hispanic students (Public Schools of North Carolina, 2000). During roughly the same period, it appears that Texas was even more successful in closing the gap between white and minority students, including Hispanics as well as African-Americans (Hannaway & McKay, 2001). Though several researchers have raised legitimate questions about the validity of the Texas learning gains (Haney, 2000; Klein et al., 2000; McNeil, 2000; Valenzuela, 2000), the gains do correlate closely with results on the nationally normed Stanford 9 assessment, providing some independent confirmation of results on Texas' own state tests (Hannaway & McKay, 2001). While the "real" learning gains may be smaller than the gains as measured by Texas' tests, both the overall gains and the reductions in gaps between whites and minorities do seem to have been substantial.

Both North Carolina and Texas have instituted multiple, coordinated education reforms, and thus it is impossible to isolate the contribution made by any one of them. But the improvement shown by the two states has been attributed in part to their systems of school accountability (Grissmer, Flanagan, Kawata, & Williamson, 2000). A report issued by the Dana Center at The University of Texas at Austin supports this attribution, and goes on to connect reductions in minority achievement gaps in Texas to the features of that state's accountability system which provide incentives to close the gaps and sanctions for failure to do so (Skrla et al., 2000). That is, in the early '90s Texas not only made an overall shift from "inputs-driven accountability" to "results-driven accountability," but also put in place a specific requirement that the same percentage of all racial and income groups must pass the assessment for a school to collect the rewards and avoid the sanctions. Partly as a consequence, Texas made even more progress toward equitable outcomes than did North Carolina.

In fact, as indicated above, the gap-focused accountability system is said to have initiated a "revolution in expectations" in many Texas districts. Low expectations for poor and minority

children are widely cited as a major cause of achievement gaps (Simmons & Ebbs, 2001; Purkey & Smith, 1983; Purkey & Smith, 1982). Yet, as Ferguson (1998c) has pointed out, efforts to change negative attitudes through training or other direct interventions seem to do more to change what people say than what they actually believe or do. Holding schools and educators accountable for improved learning outcomes for poor and minority children appears to represent a way to re-set expectations on a system-wide basis. It sends the message, "Whether you personally believe these children can learn to high levels or not, the system is going to hold you professionally responsible for seeing to it that they do." As local educators in Texas districts began to experience greater success with formerly low-performing students, they gradually came to believe that these students could learn to higher levels: "These districts 'learned' to have higher and higher goals based on their success with lower ones" (Skrla et al., 2000). The experience of these districts is presented in greater detail later in this report.

Adopting gap-closing accountability features roughly similar to those instituted in Texas would strengthen the incentives and pressures to close minority achievement gaps here in North Carolina. Indeed, there have already been several recommendations along this line, including initiation of a Minority Report Card; piloting of an adjustment to the ABCs accountability system to disaggregate data by ethnicity, poverty status, and limited language proficiency; and a recommendation from the Commission on Improving Achievement and Closing Gaps (often referred to as the Bridges Commission) to hold districts rather than individual schools accountable for closing gaps.

Especially in light of the evidence from Texas, we concur with the general thrust of these recommendations. There are, however, significant complications involved in making appropriate adjustments in the ABCs program that bear reviewing here. First, the Texas accountability system is not based on schools' ability to promote an expected amount of learning among its students during an academic year. Instead, for a school to avoid sanctions and achieve recognition, Texas simply requires that the school as a whole and every subgroup within the school reach a common threshold of absolute performance. When the program started in the early 90s, the threshold was very low – 25% of students at or above grade level. Each year, the threshold has been raised by 5%, so that it now stands at 55%. Thus, Texas has built growth into the system, starting low and slowly raising the bar, but this is a quite different mechanism from North Carolina's system, which is based primarily on a school's ability to produce or exceed a certain amount of learning by students in the school during each year. As the report submitted to the Joint Legislative Oversight Committee on piloting a disaggregation in the ABCs system indicates, however, it would indeed be possible to modify the ABCs model to incorporate such features.

For all its benefits in new funding and attention to achievement gaps, however, the new federal No Child Left Behind Act introduces some major new complications and even obstacles to making smooth adjustments to the existing system. While the federal legislation is often portrayed as having been modeled on the Texas system, it differs from the Texas model in significant and troublesome ways. Some have even argued that the No Child Left Behind Act is so deeply flawed that serious substantive revisions in the legislation will be required to avert a disastrous collision with realities in most states (Elmore, 2002). Several of the difficulties are technical, and it may be possible to resolve these in the context of negotiations over the regulations that will actually shape implementation of the law. But others do seem fundamental enough to warrant mention here.

First, the federal legislation requires states to track many more groups than does the Texas system. Whereas Texas deliberately chose to limit the number of groups disaggregated to four, the federal legislation will require states to track ten groups, including students with limited English proficiency, students with disabilities, seven different ethnic and socioeconomic groups, as well as the school as a whole. Each group must make "adequate yearly progress" – that is,



must score along or above a trajectory that leads roughly from where the groups are now to 100% at proficiency by 2012.

Second, while the Texas model started low and gradually raised the bar so that the standard became challenging but attainable, the federal legislation requires an aggressive initial benchmark of about 65-70% proficiency for each of the ten identified groups. For some groups, this should not prove a difficult standard to reach. But the “starting point” for the “adequate yearly progress” trajectory will mean that the slope of improvement for some groups – such as handicapped students and students with limited English proficiency (who may not be excluded from testing even on a transitional basis) – will be so steep that it will prove virtually impossible to achieve. Under the federal legislation, failure to produce adequate yearly progress for any one group on any test will mean that the whole school will be regarded as low performing. Thus, a school which clearly exceeds growth targets set under the current ABCs system and which even earns School of Distinction status by bringing 80% of its students to Level III proficiency could be labeled “low performing” in the federal scheme.

In fact, current projections both nationally and within North Carolina suggest that a majority of all schools might well fall into the low performing category in the federal system. Such a high rate of “failure” seems likely to create confusion and to call either the education system itself or the federal accountability system into question. If an accountability system is intended to raise expectations and thus performance over time, precipitating a crisis of this sort scarcely seems productive. The states which have shown the greatest improvement over the past decade have – by different methods – used accountability to promote growth at an attainable rate.

Third, such widespread failure would make it difficult to target interventions where they are needed most – one of the very things that a good accountability system should do (Ladd, in press). The current ABCs accountability system makes it clear where the greatest need for intervention is – in schools that both fail to make their growth targets and fail to reach a certain threshold of absolute performance. By comparison, the federal legislation makes no distinctions between a school or school district that misses the target for one group on one test and a school or district that fails to meet the target for all groups on all tests – 19 out of 20 would count as failure to the same degree as 0 out of 20. Simply in the interests of clarity about performance, to say nothing of the need to target resources for intervention, some means of distinguishing different levels of success seems essential.

Fourth, the small size of some groups at the school level can cause serious problems in the reliability of disaggregated data. The problem here is random variation or “noise” – random variation in factors such as students’ alertness, distractions in their personal or family lives, or distractions in the actual testing environment. When large numbers of students take a test, the laws of large numbers can be counted upon to “wash out” or average out such variations. But with small numbers, test scores can zigzag wildly for reasons unrelated to students’ “true” levels of knowledge and skill. Under these circumstances, a school could be rewarded undeservedly in one year and punished undeservedly in another. To compound the injustice, a school that analyzes its scores and makes adjustments in curriculum and instruction accordingly could change things in ways that actually impairs subsequent performance. Several ways of addressing the problems associated with small numbers might be used. For example, under some circumstances, using a rolling three-year average for subgroups might help smooth out random, misleading variations in the shape of the performance curve. Or scores at the extremes might be set aside for accountability purposes. Whatever the particular means, some method of addressing the small numbers problem will have to be adopted if the system is to function properly.

A fifth apparently technical but important problem introduced by the federal legislation is that for reasons of elementary probability, it is generally easier to bring fewer groups up to grade level

proficiency than it is to bring more groups to proficiency (Kane & Staiger, 2001). That is, a school could slip up with a particular group. So, all other things being equal, the more groups there are in a school, the more difficult it will be for that school to make "adequate yearly progress." This becomes important in the context of policy regarding achievement gaps because a system that demands disaggregation of a large number of groups could inadvertently create an incentive to segregate ethnic groups rather than to desegregate them. Any statistical advantage gained through such a strategy would probably be more than offset by the disadvantages of segregation. After all, segregation clearly depresses student achievement (page 34 ff.), and large concentrations of economically disadvantaged and minority students present especially difficult challenges. The point is simply that one does not want to inadvertently create incentives for bad practices.

We point out all of these difficulties with the federal legislation not to challenge its value or to undermine the case for adding disaggregation to the ABCs accountability system, but to signal the complexities of making this addition in the most constructive way, and to suggest that the coming period of negotiation with the US Department of Education, modification of the federal legislation, and design of the new features of the ABCs system will require time, a high level of technical competence, toughness in dealing with the federal government, and unusually high degree of patience from policymakers as all of this is worked out. This being said, we continue to believe that introducing data disaggregation into our system of accountability is essential to closing achievement gaps. Even before the adjustments in the ABCs accountability system are made, a first version of the school-by-school report cards called for by Governor Easley and funded by the General Assembly last year will be released this May. The school report cards will carry no new incentives or sanctions at this point, but even the ready availability of disaggregated data on individual schools should provide a spur to new action by local districts.

### **Pre-K Programs for At-Risk Four Year Olds**

During the 2001 session, the General Assembly appropriated funds to launch Governor Easley's More at Four pre-Kindergarten program for at-risk four year olds on a pilot basis. Research provides very strong support for early childhood programs in general and for pre-K programs in particular.

By the time students enter kindergarten, the black-white gap is already about half its ultimate size (Jencks & Phillips, 1998). Similar gaps presumably exist for other minorities with high rates of economic and educational disadvantage. As a result, many minority children start school behind their classmates and never catch up. Yet high quality early childhood programs that focus on academic preparation for school can reduce the gap sharply, and with long-term benefits in school achievement, grade retention, special education placement, and social skills (Barnett, 1995). The gains are significant and lasting only in programs of high quality – those with low child-staff ratios, well-educated staff, and careful supervision (Peisner-Feinberg et al., 1999).

In addition to quality, the content focus of early childhood programs is crucial. Programs that make a deliberate effort to familiarize children with letters, sound-letter correspondence, numbers, and other content needed for success in school are particularly helpful to children from economically and educationally disadvantaged family backgrounds. Such preparation for school is most effectively done by capitalizing on students' natural interests rather than using more rigid drillwork (Henry, 2001).

Rutgers economist Steve Barnett has shown that high quality, well-focused early childhood programs are not only effective in getting children ready for school, but that the payoffs of such programs over the lifespan of the children served substantially outweigh their costs by reducing the costs of other services and improving the productivity of the children served (Barnett, 1995). Though Barnett does not compare the cost-effectiveness of such programs with rival approaches

to improving the academic performance and long term productivity of at-risk children, he does make a compelling case for the cost-effectiveness of early childhood education programs, themselves.

In light of research demonstrating the substantial and long-term benefits of early childhood programs, several other states have launched pre-K programs for four year olds. Their experiences reveal some useful guidance for the implementation of a successful pre-K program. First, shortages of facilities in public schools and a desire to use rather than undercut existing non-public capacity to provide early childhood services have led states to rely substantially on private sector programs. For example, approximately 60% of the services provided by Georgia and New York are delivered through private sector programs (Clifford & Gallagher, 2001). So there is ample precedent for the use of private programs in other states.

Some have expressed concern that existing early childhood programs may not focus sufficiently on academic preparation for school, but there is as yet no evidence to confirm or disconfirm this worry. The National Research Council and the National Academy of Sciences' Institute of Medicine have both recommended adoption of pre-K curricula focusing on language development, literacy, mathematics, and science in balance with attention to social and emotional development (Clifford & Gallagher, 2001), and More at Four regulations consistent with this recommendation provide some assurance that both public and private programs will give adequate attention to academic preparation.

Research has not yet established what level of expenditure is necessary to operate effective pre-K programs. Charlotte's *Bright Beginnings* program and similar full-day programs report expenditures of \$6,000 to \$8,000 per child (with the latter figure including supervision, space, and overhead costs in addition to basic operating expenses). The Georgia pre-K program spends considerably less (under \$5,000 per child), but differences in personnel requirements and salaries, supplemental services, facilities and equipment, and other cost elements make it difficult to compare costs and clarify what level of funding would be adequate for an effective program (Clifford & Gallagher, 2001). Supplemental services for special education children – required under federal law – and the costs of transportation for families unable to provide their own transportation can add substantially to the expenditures necessary to make programs effective for at-risk children.

Because program quality is crucial to the effectiveness of early childhood programs and because the level of expenditure required to operate high quality programs is uncertain, research points to the importance of states assuring the availability of good technical assistance as well as a data system that can provide sound evidence on the number of children served, the nature and quality of the services they are getting, and the costs of these services across different types of settings.

The strong evidence for the effectiveness and cost-effectiveness of early childhood programs clearly support the continuation and expansion of the More at Four program to serve all of the approximately 10,000 at-risk four year olds not served by existing programs.

### **Class Size Reduction in Grades K-3**

Research confirms that reducing the size of classes in grades K-3 can produce large and lasting gains in student learning. Small classes improve achievement for all students, but help minority and low-income students the most (Word, Achilles, Bain, Folger, Johnston & Lintz, 1990; Finn & Achilles, 1990; Molnar, Smith & Zahorik, 1999). Only when classes drop below a certain threshold, however, do large benefits appear and last into subsequent grades (Word et al., 1990; Finn, 1998; Finn, Gerber, Achilles, & Boyd-Zaharias, 2000). The strongest research indicates that classes should be no larger than 17 students, but some research suggests that classes of 19 or fewer produce positive results. The size of the reduction – the difference between the size of

classes before and after class size reduction – also affects the size of the gains that may be expected

For the gains to endure, students need to be in small classes for at least two years (Finn et al., 2000), but three or four years of small classes produce still larger lasting gains. With at least two years of smaller classes in grades K-3, students not only learn more even after they move into larger classes at grades 4 and beyond, but are also less likely to drop out of school and more likely to graduate from high school with honors (Boyd-Zaharias & Pate-Bain, 2000). The gap between black and white students on college entrance examinations has also been found to be significantly smaller for black students who were in smaller classes in the early grades.

Exactly how smaller classes increase student achievement and narrow gaps is not completely clear. Teachers in smaller classes do not appear to alter dramatically either their teaching strategies or the amount of content they cover, but they do give students more individual attention through one-on-one tutoring and brief on-the-fly help (Molnar et al., 1999). Smaller classes also seem to reduce the incidence of discipline problems, allowing teachers and students more time to concentrate on teaching and learning (Achilles, 1994; Egelson, Harman, & Achilles, 1996; Molnar et al., 1999). And teachers with smaller classes spend more time communicating with parents than do teachers with larger classes (Stecher, 2001).

The Tennessee STAR study – referred to by Harvard statistician Frederick Mosteller as “the gold standard of class size research” – compared the effects of smaller classes not only with classes of normal size taught by a single teacher (about 26 or 27), but also with classes of normal size taught by a teacher with a teacher aide. The STAR study found no improvement in the classes with aides over normal-sized classes without aides. This has led some districts, including the Burke County district here in North Carolina, to reallocate funds used for teacher aides to hire teachers. There is, however, evidence that if aides are carefully selected for their verbal skills, trained, and assigned to tutor students one-on-one, they can make a contribution to student learning (Farkas, 1998a; Farkas, 1998b). The proposition that carefully trained instructional aides can contribute to improved student outcomes is supported by Hallmarks of Excellence: How Successful Schools Succeed, a report of Governor Easley’s Education First Task Force based on interviews and observation in a dozen North Carolina schools chosen largely for their sharply improving scores on ABCs tests and relatively small minority achievement gaps. In several of these schools, aides participated in professional development along with regular classroom teachers and were seen as major contributors to the success of the schools. Thus, whether aides make a difference in student achievement and help close gaps appears to depend on how they are chosen, trained, and deployed.

Though the effectiveness of class size reduction is well-established, its cost-effectiveness is still debated. But a recent study by the RAND Corporation found it among the three most efficient forms of expenditure to improve student achievement, along with pre-Kindergarten programs and providing teachers with more discretionary resources to use in teaching (Grissmer et al., 2000).

Spurred in part by research findings such as those reported above, a number of states have initiated large scale class size reduction programs. These statewide initiatives carry with them the challenges of much larger scale and routine operation. Yet with minor exceptions, evaluation results from these full-scale programs are consistent with the earlier research (Stecher & Bohrnstedt, 2000; Stecher, 2001; Molnar, Smith, & Zahorik, 2000). Along with these positive findings, however, other states’ experiences point to some important obstacles to and worrisome side effects of full-scale class size reduction. The success of the initiatives has been frustrated by a shortage of high quality teachers, a lack of adequate facilities and equipment, and a lack of adequate funding.

California's class size reduction program exacerbated its shortage of qualified teachers, occasioning a sharp rise in the percentage of teachers without a full license and reducing the percentage of teachers with advanced education and with more than five years of teaching experience (Stecher & Bohrnstedt, 2000; Stecher, Bohrnstedt, Kirst, McRobbie, & Williams, 2001). North Carolina is already facing a serious teacher shortage, especially in low wealth counties, in counties that pay small teacher salary supplements, in the certain grades and specialties. The class size reduction program initiated by the General Assembly last year included some funds for college scholarships for prospective teachers, including teacher assistants interested in gaining certification. The plan also phases in class size reduction; so the increased demand will also be phased. Yet, given the existing shortage of teachers, additional efforts to retain and recruit new teachers will be necessary to compensate for the increased demand occasioned by class size reduction.

In both California and Wisconsin, class size reduction also created a facilities crunch. About 40 percent of California schools reallocated space from existing programs, including special education, to make room for more classes. In Wisconsin, many schools assigned two teachers to teach classes of 30 students rather than two separate classes of 15. The research literature is unclear on whether such arrangements improve outcomes and reduce gaps, but the benefits do not match those afforded by separate small classes (Molnar et al., 2000), and one major researcher in the field sees no gain over classes of normal size (Achilles, personal communication, 2001). As documented by the NCDPI's 2000-01 *Statewide School Facilities Needs Survey*, North Carolina already faces a shortage of classroom space. North Carolina school districts face some \$6.2 billion in construction needs over the next five years, and almost two thirds of that (63%) is for new schools and additions to existing schools (NC Department of Public Instruction, 2001). The phasing of our class size reduction program may ease the facilities crunch to some degree, but the plan offers little or no help in addressing the facilities needs, and some level of problem is likely to emerge, especially in poor and in rapidly growing counties.

In California, inadequate funding to cover the full costs of class size reduction together with the voluntary nature of the program meant that many poor districts which had some of the largest classes were unable to take advantage of the program. Our own class size reduction program funds the full personnel costs of reductions, but not the costs of facilities or of equipping additional classrooms. A separate, aggressive class size reduction program – setting class sizes at 15 students – was enacted for the lowest-performing high poverty schools. The improvements in our program over California's should reduce the inequities compared to those experienced in California, but the adjustments may not be adequate to eliminate them.

Despite these difficulties, we believe the large and lasting proven benefits of smaller classes in grades K-3 for all students and especially for low-income and minority students are worth the costs, justifying the extension of the class size reduction initiative undertaken in the last session of the General Assembly.

### **Preparation and Professional Development for Teachers and Administrators**

Research shows differences in teacher quality to be among the most important factors accounting for differences in students' academic growth from year to year. In fact, some claim that it is the single most important factor (Wright, Horn, and Sanders, 1997). Students who get three effective teachers in a row in grades three through five score fifty percentile points above students who get three ineffective teachers in a row (Sanders and Rivers, 1996; Jordan, Mendro, and Weersinghe, 1997). The effects of even a single ineffective teacher are enduring enough to be measurable at least four years later (Sanders and Rivers, 1996).

There is also strong evidence that disadvantaged and minority students are regularly assigned less qualified, less experienced teachers than are white children. For example, in districts all

across North Carolina, predominantly African-American schools are assigned unusually large percentages of inexperienced and uncertified teachers (Simmons & Ebbs, 2001; Mickelson, 2001).

So, teacher quality matters, and quality teachers are inequitably distributed. How can the state improve the supply of high quality teachers, and how can it assure that they are more equitably distributed? In recent years, the General Assembly, State Board of Education, Department of Public Instruction, and the University have taken a number of steps to improve the overall quality of teachers in the state. Speaking more specifically to the issue of teachers' capacity to teach economically disadvantaged and minority students effectively, the Bridges Commission has recommended that programs of teacher preparation and professional development give greater emphasis to improving teachers' knowledge and skill in working with children from different ethnic and cultural backgrounds.

Would more emphasis on "culturally responsive instruction" improve teacher preparation, as well as district- and University-based professional development for teachers? Perhaps because professional development occurs closer to the actual delivery of instruction, the evidence for a link between professional development and student outcomes is somewhat clearer than the evidence concerning teacher preparation. There is some support in the professional development literature for attention to cultural differences in learning and teaching. For example, Wenglinsky (2002) analyzed the relationship between the professional development that teachers received and their students' scores on National Assessment of Educational Progress mathematics assessments. He found that professional development strongly influenced teachers' classroom practices and their students' learning, including professional development on how to teach diverse learners.

The best evidence concerning the link between professional development and student learning as measured by standardized tests comes from a synthesis of several studies by Kennedy (1999), a study of mathematics education by Cohen and Hill (2001), and a more recent synthesis by Odden, Archibald, Fermanich and Gallagher (in press). Kennedy's examination of methodologically sound published studies of the link between professional development and student learning showed that it was the content or focus of professional development programs rather than the format of the professional development that accounted for their effectiveness. Professional development that addressed the content to be taught to students, how students actually learn the content, and the difficulties they experience in doing so, and – to a lesser extent – how to teach the content, produced significant learning gains for students.

Cohen & Hill (2001) examined outcomes for students of California teachers who had experienced professional development focused on the specific mathematics curriculum to be taught, on creating or adapting materials to teach the curriculum, and on the assessment of students' work on particular curricular tasks. These teachers produced higher learning gains for their students than did teachers who had not benefited from such professional development.

Odden and his colleagues' synthesis of a range of recent studies supports the finding that the content focus of professional development is crucial – that is, whether the professional development focuses on improving teachers' knowledge of the content and of how students learn the content, including the typical kinds of mistakes or misconceptions that students experience en route to successful mastery. Odden et al. also concluded that several other features of professional development are important to its effectiveness, including active learning, or whether it offers opportunities for teachers to work together on tasks such as evaluating samples of student work together, or developing and refining curriculum materials based on state or national standards for the subject; collective participation, or whether teachers participate along with colleagues from their own school, department, or grade level rather than as isolated individuals; form, or whether the activity goes beyond the workshop format to provide opportunities for

teachers to work together through study groups, networks, committees, or the like; duration, or whether the activity involves sustained study and work for many hours over several weeks or months; and coherence, or whether professional development is aligned with state and local curricular standards, teacher evaluation, and other aspects of the education system within which teachers work.

Odden adds that,

Some portion of professional development could focus on 'culturally relevant pedagogy,' i.e., instructional strategies that work in high minority classrooms [such as those] articulated by Gloria Ladsen-Billings (1997).... But the bulk of training should focus on academic content per se and what is known about that content, and then putting that knowledge into curriculum units that are systematically tried out in teachers' classrooms.

(Odden, 2002, Memorandum commissioned  
by the NC Education Research Council)

Some national advocates of strong measures to close minority achievement gaps actually warn of dangers associated with professional development on "culturally responsive" instruction, especially in isolation from attention to curricular content. For example, Kati Haycock of The Education Trust writes,

In our work in schools around the country, we see the harmful effects of this kind of professional development every day. We see such effects in the number of coloring assignments, even in middle and high schools; in deliberately dumbed-down but culturally "relevant" lessons; and in teachers who've been convinced that liking the kids is more important than teaching them. It pains our staff to see this because we know that, for example, African-American literature can be done in intellectually rigorous ways and, for another, that Howard Gardner did not mean to suggest that black children don't have the intelligence that's about writing or mathematics. But these, quite frankly, are the lessons that [many] teachers draw from professional development [about cultural relevance or responsiveness]. And if you sat through a few of these sessions (or their counterpart courses in Education Schools) you would see why.

Our experience working with teachers in predominantly minority schools suggests that the biggest weaknesses tend to be content-related. [Teachers often] don't know the state standards, they haven't spent time mapping the curriculum to those standards, their assignments have slipped well below grade level, they don't know what grade level work looks like, they don't know the content well enough to turn it around and teach it in different ways, and they don't know how to analyze where the students are. Accordingly, professional development that starts with standards and curriculum, that deliberately builds [understanding of] related content, and that works toward common definitions of quality assignments and quality student work is what gets results.

(Haycock, 2002, Memorandum commissioned  
by the NC Education Research Council)

Putting these viewpoints together, the consensus seems to be that professional development to improve the quality and effectiveness of instruction for economically disadvantaged and minority students should focus primarily on the subject matter they are to learn, on how students from various backgrounds both struggle to learn and succeed in learning the content, and on how to teach the content to a diverse range of learners. That is, cultural differences in learning are probably best addressed in the context of the teaching and learning of the content specified by state and local standards. Professional development on cultural differences should be carefully

designed to avoid inadvertently strengthening ethnic or cultural stereotypes rather than sensitizing teachers to differences that may result from students' different cultural backgrounds. To be effective, professional development should also involve active learning by teachers; collective participation by whole schools, departments, or networks of teachers; and extensive opportunities for teachers to examine, discuss, and work together to improve their teaching over time.

Although there is broad support for the belief that leadership by principals is important to successful school performance (Purkey & Smith, 1983; Purkey & Smith, 1982), research is less clear on whether and how professional development for principals and other school-level administrators can improve student performance and close minority achievement gaps (Hoachlander, Alt, & Beltranena, 2001). Research from the Texas districts cited earlier does provide some guidance, supporting professional development on how to use disaggregated data to guide curricular and instructional decisions, how to allocate resources more effectively to carry out these decisions, how to make sure that the curriculum is aligned with state standards and is well articulated between grade levels, how to monitor instruction to assure that the intended curriculum is actually implemented, and how to examine student work products as well as data to keep tabs on student learning on a continuing basis (Skrla et al., 2000).

The findings summarized above concerning professional development for teachers also have implications for principals. Principals should know, for example, that to be effective, professional development for teachers needs to focus on the knowledge and skills students are expected to learn, on how diverse students learn it, and on how it may be taught effectively to students from different cultural backgrounds. They should also know that professional development is most effective when it engages teachers collectively, as whole-school, grade level, or departmental groups, and that while concentrated workshops may help, teachers also need extended opportunities to weave what they have learned into good lesson plans and materials, try out the lessons and materials, observe in each others' classrooms, discuss their experiences in teaching the required content to diverse learners, and make adjustments based on their experience and reflections.

As indicated earlier, because professional development occurs closer to its actual application in schools and classrooms than does teacher or administrator preparation, it is somewhat easier for researchers to identify linkages between professional development and student outcomes than between teacher preparation and student outcomes. The results of research on teacher preparation are, however, broadly consistent with the major themes of research on professional development. For example, advanced education in the subject matter taught does increase teachers' effectiveness (Hawk, Coble, & Swanson, 1985), as does coursework in teaching and learning, especially when it is connected with solid subject matter knowledge (Druva and Anderson, 1983). Especially given the consistency between these findings from research on teacher preparation literature and findings from the professional development literature, it seems logical to conclude that pre-service programs with the same general features as effective professional development programs should equip teachers well to deal effectively with economically disadvantaged and minority students.

So what policy actions should the General Assembly, State Board and DPI, and the University system take to strengthen preparation and professional development for teachers and administrators? In recent years, state policy makers have already taken numerous steps to improve the overall quality of teachers and administrators in the state. For example, program accreditation requirements set by the State Board of Education and the National Council for Accreditation of Teacher Education (NCATE) have been modified to require fuller attention to cultural responsiveness and to preparation of teachers to work with the full diversity of students found in our schools. To promote further improvement of teachers' and administrators' preparation to educate minority and at-risk students, we recommend revising the IHE report card



to include feedback from program graduates, principals in the schools where they are employed, and their mentors regarding how well they are prepared to teach students from diverse backgrounds. This parallels our recommendation to revise the ABCs accountability system to include incentives to close achievement gaps.

The deans of schools of education within the University have already begun developing a joint initiative to increase their programs' attention to the way diverse students learn the ideas and skills specified in the NC Standard Course of Study, including the particular strengths and special approaches that students from different cultural backgrounds may bring to the material as well as the difficulties they experience in coming to master it. Steps to engage faculty from the relevant academic subject matter disciplines more fully in teacher preparation are also under way. We recommend that the deans from the University system invite their counterparts from the private colleges and universities to join in these efforts.

In response to legislation requiring the State Board of Education to set priorities for professional development programs in the Center for School Leadership Development (CSLD), the Board has already directed the CSLD programs to plan and provide coordinated services to a number of schools where minority achievement gaps are large and widening. A joint task force of DPI and University representatives are now developing the plan. The plan will reflect attention to the research on professional development for teachers and administrators presented in this report. We recommend that it be coordinated with the technical assistance project proposed here.

As noted above, not only the quality but also the distribution or assignment of teachers affects minority achievement gaps, and at present, there is strong evidence of inequitable assignment in districts all across the state. The assignment of teachers to schools and classrooms is traditionally a local district prerogative, and it is difficult to imagine the state taking any direct role in teacher assignment at a broad level. But the introduction of incentives to reduce minority achievement gaps into the ABCs accountability program should induce districts to assign highly qualified teachers more equitably. The forthcoming report from Governor Easley's Education First Task Force includes recommendations on ways to attract highly qualified teachers to high-poverty, high-minority schools which are commonly hard to staff effectively, and we urge support for these. The issue of equitable assignment of teachers is addressed more fully in the section on district-level actions, below.

### **Summary of Recommendations on State-Level Actions**

In light of the research summarized above, we recommend that two broad types of action be taken at the state level: action to strengthen the incentives to close minority achievement gaps and action to improve the capacity of the state's education system to do so. Strengthening incentives will involve making adjustments in the ABCs accountability system. Improving the capacity of the education system to close gaps will involve taking additional steps along three paths on which the General Assembly has already embarked -- extending pre-K programs to serve all at-risk four year olds, reducing class size in grades K-3, and strengthening preparation programs for teachers and administrators. We also recommend a new capacity building initiative -- a pilot program to provide selected districts with technical assistance to analyze existing gaps, practices, and resource allocation in the districts and to use research as a guide to change practices and reallocate resources to address the gaps more effectively.

These actions are appropriate ones to take at the state level rather than leaving them to the discretion of educators at the local level for a combination of reasons. First, research provides sufficiently strong support for them to lead us to believe that they will be effective on a statewide basis. Second, some of them, such as class size reduction and pre-K programs for 4 year olds, require a level of new resources that would be difficult or impossible for local districts to muster on their own. And third, programs of preparation for teachers and administrators and some

programs of professional development for them are operated by the state's University system rather than by local districts. Though research does offer guidance on several additional important actions that can be taken to eliminate minority achievement gaps, which of these specific actions would be the most cost-effective will vary across different school districts and schools. So we recommend preserving local flexibility concerning these actions.

## **SUPPORT FOR DISTRICT-LEVEL ACTIONS**

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- Revolutionize Expectations via Accountability
- Establish A Sound Footing
- Increase Instructional Coherence to Focus Effort
- Strengthen Teaching and Instructional Leadership
- Equalize Opportunity to Learn
- Help Students Who Still Fall Behind
- Increase Parent and Community Involvement
- Desegregate Schools and Programs Within Schools

Though research shows that a strong equity-focused accountability program at the state level can create powerful incentives to close minority achievement gaps, it also indicates that for the accountability system to exert its maximum effect, school district and community leaders must pick up on the signals from the state level, amplify them, and communicate them throughout local districts. By doing so, they can create a "revolution" in principals', teachers', and other educators' expectations for the performance of poor and minority children (Skrla et al., 2000). Thus, we begin this section by outlining how some top-performing Texas districts brought about such a revolution in expectations.

Elevated expectations appear to be crucial but not sufficient to close achievement gaps. That is, elevated expectations do not bring about higher performance by themselves, but must be translated into sound practices and increased capacity to carry them out. So in the next part of this section, we review research on a set of specific practices that appear to be effective in reducing gaps and on ways to build the necessary capacity to carry them out.

The research presented below makes it clear that local school districts can play a major role in closing minority achievement gaps and points out some ways that they can do so. Yet, over the past few years, the district role has been underemphasized in North Carolina education policy. The underemphasis on the district role may be an inadvertent byproduct of an effort to spotlight individual schools' performance and to avoid allowing poor performance in some schools to be masked by good performance in others. Spotlighting individual schools has indeed proven an advance, and we certainly do not advocate backing away from a school-level focus in the ABCs accountability system. But districts can do more without schools doing less.

Some districts are already moving effectively both to improve overall achievement and to narrow achievement gaps, but many districts seem to need help to clarify the specific problems they face, analyze the effectiveness of their current practices and resource allocations, and draw on research to adopt more effective practices and reallocate resources to support them. Thus we propose the technical assistance project alluded to earlier – a pilot effort to help selected NC districts promote the high levels of performance attained by top Texas districts, as well as by a handful of other districts here in North Carolina. If the pilot succeeds as we expect it will, it will both generate lessons for other districts and develop the capacity to provide assistance on a broader basis. As the state's economic picture improves and the budget permits, resources can then be appropriated to extend the lessons from the pilot to other districts across North Carolina.

### **"Revolutionize" Expectations via Accountability**

The Coleman Report in 1966 and Jencks' Inequality in 1998 established the view that schools themselves could not compensate for the effects of poverty and discrimination, and that reversing these effects would demand broader efforts to equalize economic opportunity and eliminate pervasive discrimination throughout the society (Coleman & Campbell, 1966; Jencks, Smith, Acland, Bane, Cohen, Gintis, Heyns & Michelson, 1972). Yet for at least two decades it has been clear that some schools enable poor and minority students to achieve far higher levels of academic performance than this conventional wisdom would imply (Brookover & Lezotte, 1979; Lezotte, 1984). In 1998 Ferguson drew attention to a still larger challenge: "... to replicate success for many students in many classrooms across many schools, by improving the performance of many average teachers and administrators" (Ferguson, 1998a).

Through analysis of test score results, researchers at the University of Texas' Dana Center identified several school districts which had done just that – bring poor and minority students to high levels of performance not just in one or two schools, but in many schools with high concentrations of such students. At least a third and sometimes all of the high poverty schools within these relatively large districts had 80% to 90% of their minority students performing at or above grade level – outperforming well over half of the other schools in the state (Skrla et al., 2000). Dana Center researchers then looked in some depth at what these districts had done to bring about such high levels of performance. As indicated earlier, the districts' actions were first triggered by Texas' equity-focused school accountability system. But forces within the districts served as additional "triggers" for action, and the districts analyzed their problems and invented ways to address them which were not specified by state level policy. In other words, the districts were active agents in bringing about reform, not just passive implementers of state policy.

Key to the top Texas' districts' mobilization to close achievement gaps were what the Dana Center researchers call "local equity catalysts" as well as superintendents, school board members, other district leaders, and community members appalled by the gaps revealed in the disaggregated data provided by the state's accountability system. By "local equity catalysts," the researchers refer to strong pressures exerted by community activists armed with the publicly-available accountability data and reinforced in some cases by federal desegregation orders. These pressures from outside the system were not resisted but actually amplified by similar reactions to the data from district administrators and school board members. While the external pressures did motivate action, so too did the district leaders' own sense of what was right – or more precisely, of what was not right. Thus, a combination of state level pressures, community level pressures, and pressures arising within district leaders' own consciences led them to take strong action to raise expectations for poor and minority students on a district-wide basis.

It was, of course, one thing for district and community leaders to make a commitment to closing achievement gaps and quite another to translate the commitment into reality in schools and classrooms across the district. To establish the commitment on a district-wide basis, district leaders had to establish a set of shared beliefs -- that all groups of students can learn to equally high standards, that it is the responsibility of adults throughout the system to see to it that they do, and that to do so everyone in the district must concentrate on improving what actually happens between teachers and students in the classroom. But how did district leaders establish these as genuine, animating beliefs rather than just as set of platitudes mouthed by all but enacted by none?

In part, changing beliefs about who could learn and who was responsible for seeing to it that they do was a matter of determined focus on the part of the top leadership. As Superintendent Sonny Donaldson of the Aldine School District put it, playing on a maxim of Stephen Covey's, "the main thing is to keep the main thing the main thing" (Covey, 1989; Skrla et al., 2000, p.18). District

leaders used a variety of techniques to make sure that educators throughout the system understood that effective teaching and learning for all students was "the main thing." But the core strategy was to keep putting the spotlight on data that revealed specific inequities in outcomes, to keep pronouncing the inequities unacceptable, and to keep holding principals and teachers as well as central office administrators responsible for eliminating the inequities.

In other words, the external pressures from the state level and from "local equity catalysts" were translated repeatedly in school after school and classroom after classroom into demands for raised expectations and better results. The mechanisms for this included the superintendent's meetings with principals, evaluation of principals and other staff, frequent central office visits to observe in schools, reviews to assure that resources were allocated to reduce gaps, careful monitoring to assure that adopted approaches were actually carried out effectively, and the like. Over time, the persistently applied pressures led local educators to internalize a new set of beliefs and guiding values, so that actors throughout the system ultimately came to act in concerted ways not solely because of the external pressures but also because they came to share a common set of beliefs that pointed in the same direction.

In the view of the Dana Center researchers, without these changes in underlying beliefs and expectations, changes in instructional practices and programs would have been limited in their effectiveness (Skrla et al., 2000). This view is supported by a great deal of research on the implementation of educational "change agent" projects (McLaughlin, 1990), as well as by the findings of the hallmarks of Excellence Committee of Governor Easley's Education First Task Force. RAND's Change Agent study found that change projects undertaken to solve a real educational problem were far more likely to be implemented successfully than projects undertaken for less authentic purposes. The "Hallmarks of Excellence" subcommittee of the Education First Task Force emphasized that the successful schools they visited used a variety of different curricular, instructional, assessment, and management approaches, but what seemed to account for their success was the "wholeheartedness" and determination to get results with which they implemented the practices (Education First Task Force, Hallmarks Committee, 2002).

Conversely, the Texas researchers also noted, without specific new practices undertaken to improve teaching and learning for students whose performance is lagging, changed beliefs and expectations are little more than wishful thinking. As indicated earlier, research from a number of contexts nationally supports several types of actions that districts and schools can take in order to close minority achievement gaps. These are reviewed below.

### **Establish a Sound Footing**

As indicated earlier in this report, by the time children start school, the gap between African-American and white students on many measures related to academic achievement is already half its ultimate size. The gap at school entry for other minority groups and for children from low income families is also unacceptably large. As a consequence, the first weeks and months of school prove deeply discouraging for many children, with fatefully negative results for their whole school careers. We have already recommended two steps that should be taken at the state level to reduce or eliminate this gap for economically disadvantaged, minority, and other at-risk students: high quality academically focused pre-Kindergarten programs and class size reduction in the early grades.

The third major step to establish a sound footing in the early grades for such students is to ensure that they learn to read well by the third grade. Pre-k preparation and small classes should help in this regard, but additional attention to reading in particular will be required, not least because reading is obviously the principal key to success in school. Fortunately, the No Child Left Behind Act will provide a major infusion of new resources to local districts to strengthen reading instruction in the early grades. In fact, according to the Bush administration, the Reading First

component of the act will triple the federal funds available for reading instruction, from \$300 million to \$900 million in the current year.

The new funds come on the heels of two major reports that sift and synthesize existing evidence on how children learn to read and on the teaching of reading. The first report, issued by the National Research Council, focused on Preventing Reading Difficulties in Young Children (Snow, Burns, & Griffin, 1998). Among its several conclusions was the following:

... there is little evidence that children experiencing difficulties learning to read, even those with identifiable learning disabilities, need radically different kinds of supports than children at low risk, although they may need much more intensive support.

The second report, by the National Reading Panel, concluded that

... effective reading instruction includes teaching children to break apart and manipulate the sounds in words (phonemic awareness), teaching them that these sounds are represented by letters of the alphabet which can then be blended together to form words (phonics), having them practice what they have learned by reading aloud with guidance and feedback (guided oral reading), and applying reading comprehension strategies to guide and improve reading comprehension.

Taken together, the two reports spell the end of the so-called “reading wars” -- the longstanding conflict between those who advocate explicit, step-by-step instruction in phonics and related basic skills and those who argue that children learn to read best almost as naturally as they learn to speak if they have plenty of opportunities to talk, draw, and write about what really interests them. Careful, objective evaluation of the research shows that both are necessary, especially for children who have trouble learning to read. The convergence may seem unremarkable to most of us, but in the world of reading research, it marks a major development.

The two thumbnail extracts above are, of course, dramatic simplifications of a vast literature. The National Reading Panel, for example, is said to have reviewed some 100,000 studies. A more detailed review of this vast literature is beyond the scope of the present report. For our purposes, the main points are that research now affords better and more unified evidence to guide reading instruction than ever before, that the research is ably summarized in the two authoritative reports cited above, and that the research applies as fully to minority and economically disadvantaged students as well as to other students. Taken together with the upcoming implementation of the 3<sup>rd</sup> grade gateway in the promotion standards adopted by the State Board of Education, the confluence of new knowledge and new funding make the call for a renewed effort to ensure that at-risk students learn to read well by third grade an obvious one.

### **Increase Instructional Coherence to Focus Effort**

How are the higher expectations for economically disadvantaged and minority students that have been set by state policy and communicated from the district level actually translated into effective approaches at the school level? One crucial step is to increase “instructional coherence” within schools (Newmann, Smith, Allensworth, & Bryk, 2001). A familiar component of instructional coherence – but not its sum total – is curricular alignment. Research in the “equity-driven, achievement focused” Texas school districts referred to above confirms earlier findings from NCDPI studies of North Carolina districts with unusually large numbers of high-minority and high-poverty schools that are performing well on ABCs tests: active efforts to align curriculum with state standards, along with active use of data to identify teachers and students who need help pay off (Skrla et al., 2000; Public Schools of North Carolina, 2000). School visits conducted by the Hallmarks of Excellence Committee of Governor Easley’s Education First Task Force corroborate the research (Education First Task Force, Hallmarks Committee, 2002).

Curriculum alignment includes making sure that teachers know what is required by the state curriculum standards and that they use the standards to guide what they actually teach on a day to day basis. In successful districts in both Texas and North Carolina, this entailed frequent classroom visits by both district administrators and principals. In one of the most successful North Carolina districts, the superintendent spends approximately half of every day visiting in schools and classrooms (Education First Task Force, Hallmarks Committee, 2002). Successful districts also organized teacher discussions across grade levels within schools and across elementary, middle, and high schools to assure that the curriculum at each level builds on what has been taught at previous levels and supports what is taught at subsequent levels.

But instructional coherence goes beyond alignment with state standards and cross-grade articulation. In fact, to the degree that state curriculum standards are, to borrow a phrase from the famous TIMSS study, "a mile wide and an inch deep," they represent a challenge to as well as an aid in establishing instructional coherence. The Hallmarks of Excellence Committee of Governor Easley's Education First Task Force found some evidence that North Carolina's Standard Course of Study lacks coherence and economy, with the result that teachers determined to cover the full curriculum often must do so at a galloping pace, with little time for hands-on, discovery-oriented instruction (Education First Task Force, Hallmarks Committee, 2002).

A recent study highlighting the power of instructional coherence defines it as "a set of interrelated programs for students and staff that are guided by a common framework for curriculum, instruction, assessment, and learning climate and are pursued over a sustained period" (Newmann et al., 2001, p.299). Thus, instructional coherence is founded upon a well-specified set of expectations for student learning that fit together within and across grade levels, but it includes a series of additional elements. Perhaps chief among these is a common instructional approach – a guiding philosophy about the kind of teaching that will work best with the full range of students in the school, prominently including economically disadvantaged students.

Whether minority children require or at least learn better from instructional approaches different from those that work well with most white children remains in dispute. One wide-ranging review of quantitative research concluded that on the whole, there is little reason to believe that black children require special instructional approaches (Ferguson, 1998). Yet another accomplished scholar makes a persuasive case that many black children profit from more explicit, direct instruction and discipline practices (Delpit, 1995).

This scholar argues that the culture of most schools in the US is a white middle class culture that values and even demands certain "ways of talking, ways of writing, ways of dressing, and ways of interacting" (Delpit, 1995). To succeed in school, she writes, children who do not grow up in a middle class culture need to learn the culture of school, more or less as one would learn a second language. Learning a second language does not imply that something is wrong with one's first language. The second language is simply a code for communicating and functioning in a context that is different from the home context and its code. For many African-American and other minority children, the culture of the school is a code that is different from the code used at home, both in terms of language and rules for behavior.

According to Delpit, teachers must enable children who come to school without knowing this code to acquire it, first by making it clear that their home language is rich, expressive, and appropriate for many contexts, and then by explaining that school requires a different language and different ways of acting. Beyond this, she writes, teachers should balance explicit or direct instruction in the conventions of Standard English with "progressive" methods of instruction. For example, students who do not know the vocabulary, syntax, spelling, and punctuation of Standard English will not necessarily "pick up" these conventions on their own, simply by writing, and they will

suffer the consequences in later education and in the job market if they do not do so. Teachers should combine "mini-lessons" in an explicit instructional style with opportunities to write about topics of interest to the student, along with less structured individual "conferences" designed to improve the student's ability to say what she means to say within the conventions of Standard English.

If many African-American children must learn and adapt to the culture of the school, Delpit goes on to argue, schools should also adapt their styles of discipline to fit those employed in many African-American homes. Some middle class teachers avoid asserting their power directly and forcefully. They assume that their position as teacher gives them authority, and that no more than suggestions or questions should be necessary to shape children's behavior. Yet in many African-American communities, authority comes not from the role or position that a person occupies, but from the force and skill she uses in asserting authority.

Thus, two major scholars, both African-American, seem to disagree on whether African-American and other minority children require or benefit from any special instructional approach. Yet, whatever specific approach is chosen, adoption and use of a guiding set of instructional principles heightens instructional coherence, and there is clear evidence that greater instructional coherence leads to improved student outcomes (Newmann et al., 2001). Establishing instructional coherence also entails adoption or creation of instructional materials consistent with the framework, the use of assessments linked to the framework in order to diagnose difficulties and track progress, and professional development designed to help teachers deepen their knowledge of the subject matter specified by the framework and conveyed in the materials. While professional development should be linked tightly to the instructional framework, it should be flexible enough to adapt to the different levels of skill and knowledge that different teachers may already possess. In addition, professional development needs to include not only the kinds of workshops and other special sessions which the term brings to mind, but also ongoing opportunities for teachers to discuss what they are learning, try it out in the classroom, and compare notes on their experiences, and make adjustments that seem necessary for the approach and materials work effectively with their own students. Collaborative examination of actual student products, with an effort to identify exemplars of good work and to explain why certain student work samples are better than others, seems to be particularly helpful.

The kind of coherence that leads to improved outcomes – coherence among well-specified and articulated expectations for student learning, curricular materials, instructional approach, assessment, and professional development – apparently can be established via a range of different leadership styles, from the democratic to the more authoritative, but if more authoritative styles are adopted, care must be taken to build and maintain the commitment necessary to successful implementation of the guiding framework (Newmann et al., 2001).

This recent research on instructional coherence is consistent with earlier work on "comprehensive school reform", which entails coordinated changes in curriculum, instruction, classroom management, and assessment for all students, supported by professional development and broad participation in school governance for teachers, as well as tutoring and other extra help for students who fall behind (Puma et al., 1997; Fashola & Slavin, 1998). There is considerable evidence that such whole school reforms can be more effective than reforms which target single elements within a school (Puma et al., 1997; Fullan, 1991; Protheroe & Perkins-Gough, 1998; Herman & Stringfield, 1997; Doherty, 2000).

A large number of models for such comprehensive school reform are available, but the strength of support for different models varies greatly (Northwest Regional Educational Laboratory, 1998). Paradoxically, as the instructional coherence researchers point out, many adopting schools implement such models in a fragmented way, without making consistent links among the components or between the components and the desired improvements in student learning

(Newmann et al., 2001). State and district policies can also frustrate the achievement of real functional coherence. The analysis of district policies and practices envisioned in the technical assistance pilot we propose should help eliminate these external impediments to coherence.

Finally, we note that considerable federal funding is available to schools through the so-called Obey-Porter Act, the Comprehensive School Reform Act of 1998, and Title I regulations will increasingly permit use of Title I dollars to support implementation of whole school models.

### **Strengthen Teaching and Instructional Leadership**

As indicated earlier in this report, teacher quality is among the most important determinants of student learning -- even more important, some research says, than socioeconomic factors. In addition to recruiting good teachers, the two main ways districts can reduce gaps by addressing teacher quality are to strengthen professional development and to assign more well-prepared and experienced teachers to schools and classrooms with high proportions of poor and minority children.

The characteristics of effective professional development outlined in the earlier section on state level programs apply equally to programs organized at the local level. Briefly, professional development should focus on the subject matter specified in state curriculum standards, on how students from varied backgrounds actually learn the subject matter, and how to teach it with links to the specific materials used to teach the subject matter. Attention to the ways that students from different cultural backgrounds learn the material can also be helpful. Collective participation by whole schools, teams, or departments is more effective than participation by isolated individuals, and districts may be better positioned than are state programs to organize professional development along collective lines. They are also well-positioned to arrange joint planning time for teachers within grades, teams, or departments, and such opportunities for continued discussion in order to assimilate the lessons of professional development into classroom teaching are essential. Finally, professional development with these characteristics should be sustained over time. Brief, scattered sessions on a variety of different topics appear to be ineffective and wasteful.

As is the case in most states, the state funds appropriated specifically for professional development in North Carolina represent a small fraction of the total funds available for professional development at the district level. A portion of the funding for numerous federal programs is either earmarked for professional development or may be spent on professional development. The new No Child Left Behind Act will add substantially to the total. Speaking not of North Carolina in particular but of studies in several parts of the country, Odden asserts that "many districts already spend considerable dollars on professional development that is a mile wide and an inch deep and has little if any lasting effect" (Odden, 2002, memorandum commissioned by the NC Education Research Council; see also Odden, Archibald, Fermanich & Gallagher, in press; Gallagher, 2001; Archibald & Gallagher, 2001). Odden echoes Corcoran's call for careful district-by-district audits of how existing professional development dollars are spent before funding is increased for professional development (Corcoran, 2002).

Turning to the issue of teacher assignment, there is considerable evidence that statewide, minority children often get less qualified, less experienced teachers than do white children. For example, predominantly minority African-American schools are assigned unusually large percentages of inexperienced and uncertified teachers (Simmons & Ebbs, 2001; Mickelson, 2001). (For a summary of research on disparities in teacher assignment nationally, see Prince, 2002). More equitable teacher assignment could sharply reduce achievement gaps, yet the assignment of teachers to schools and classrooms is traditionally a local district prerogative, and it is difficult to imagine the state taking any direct role in teacher assignment at a broad level. If



the gap-reducing incentives introduced into the ABCs accountability program are designed correctly, they should induce districts to assign highly qualified teachers more equitably.

Governor Easley's Education First Task Force is also expected to propose new funds to attract highly qualified teachers to high-poverty, high-minority schools. It should be noted, however, that there are significant barriers to attracting teachers to struggling schools (Prince, 2002). Some are "built-in," as it were: teachers often find it more attractive to teach children who are easy to bring to high levels of performance than to teach more challenging populations. Some are political: more affluent parents resist the loss of good teachers for their own children. And some may be unintended by-products of policy: teachers may avoid schools where they anticipate difficulty in earning bonuses for meeting or exceeding expected growth. In all, the problem of attracting highly qualified teachers to schools and classrooms with challenging student populations deserves close attention through the pilot technical assistance project we propose.

As indicated earlier, there is a large literature from the "effective schools" research that identifies characteristics of the principals of such schools, but research is less clear about what characteristics of professional development for principals and other school administrators make for improved student performance. The work on "equity-driven, achievement-focused" school districts in Texas which has been cited extensively elsewhere in this report emphasizes the importance of training principals and decision making committees in the use of student performance data, on site-based budgeting so that they use their budget discretion to improve instruction, and on how principals can monitor classroom instruction and conduct performance evaluations to assure that the state-specified curriculum is taught fully and in a manner consistent with the school's chosen instructional approach (Skrla et al., 2000). It also seems logical that principals should be knowledgeable about the characteristics of good professional development for teachers, including the need to focus it on content as well as on how diverse students learn the content, and the need to arrange for joint planning time and collaborative efforts by teachers to examine student work products and to assimilate what they learn from professional development into classroom instruction.

### **Equalize Opportunity to Learn**

- Dropout Prevention
- Reduced Suspensions and Expulsions
- Reduced, More Equitable, and More Appropriate Referrals for Special Education
- Access to the Curriculum for English Language Learners
- Equity in Grouping
- Equity in Tracking

Having assured that minority and economically disadvantaged students get a sound footing for school success and that their schools offer a curriculum that is well-aligned with the state standards on which testing is based, that schools offer a coherent instructional programs, that teachers and principals get effective professional development, and that good teachers are equitably distributed, the next step is to make sure that economically disadvantaged and minority students have an equal opportunity to learn what the school has to offer.

If they are not in school, are not in class, or are not in classes or groups within classes that give them an even chance to learn challenging subject matter, there is simply no way minority students are going to achieve at the same high levels reached by students who do have such opportunities. Sorenson and Hallinan made this simple but essential point in a famous article on "opportunity to learn" (1977). Equalizing opportunity to learn involves preventing dropout, reducing suspensions and expulsions, reducing inappropriate referral to special education and assuring that students who do need such services get the fullest possible chance to learn the regular curriculum, getting English language learners up to speed and supporting them as they

move into the regular curriculum, making sure that all students get rigorous coursework, and giving minority children equal access to programs for gifted and talented students as well as honors, Advanced Placement, and International Baccalaureate programs.

Dropout Prevention. North Carolina's severe dropout problem, which places the state 36<sup>th</sup> in the nation (North Carolina Education Research Council, 2001), has recently received renewed attention. Almost 40% of the students who enter the ninth grade fail to graduate on time four years later, and the rates for minority and economically disadvantaged students are considerably worse. If we completely eliminate the achievement gap for students who stay in school and do not sharply reduce the dropout rate, a large gap will remain between the life chances for white and minority children.

The dropout problem can be analyzed into two components (Roderick, 1993). The first wave of dropouts consists of students who begin school well behind their age-mates, who never catch up, and who consequently become profoundly discouraged and leave school at the earliest opportunity. Several of the steps already discussed (pre-Kindergarten programs, smaller classes, better early reading instruction, etc.) could substantially reduce this component of the problem.

The second wave of dropouts includes many students whose academic skills, while not stellar, could enable them to complete the coursework to graduate. They drop out not from overwhelming discouragement with academics, but more because they simply do not feel known and cared about by the adults in their schools. Lacking any sense of connectedness with teachers, counselors, or other adults, they have no social or emotional bonds to keep them in school during difficult times. Smaller schools or "schools-within-schools" and deliberate efforts to personalize schools -- to make sure that the students who commonly fall through the cracks develop a personal relationship with at least one key adult -- can increase students' sense of belonging or "engagement" with school and keep many more of them in school (Wehlage et al., 1989). Active efforts to involve at-risk students in extracurricular activities, where they have more opportunity to form personal bonds with adults, appear to have surprisingly strong effects. Participation in at least one extracurricular activity can more than offset even the discouraging effects of retention in grade (Richman & Bowen, 1997).

For other students, not seeing a link between education and jobs may lead to a lack of school engagement (Pouncy, 1999). School-to-work and vocational programs can be designed to show at-risk students the value of education in future work. Not only do these programs engage students by showing them the relevance of their studies, they help students build confidence in their abilities in a work environment (Lerman, 1999).

Reduced Suspensions and Expulsions. Among the reports we were asked to review is the Department of Public Instruction's, *Report on the Study of Student Suspensions and Expulsions from 1997-98 and 1999-2000*. This report does not offer recommendations or conclusions regarding suspensions or expulsions, but does provide detailed trend data over a three-year period. Key trends are that long-term suspensions are increasing and that black and multiracial male students are highly over-represented. An update to this report, published in February of this year, finds the same trends.

The report for 1997-98 through 1999-2000 also gave figures on whether students who were long-term suspended received alternative learning placements during the suspension. This report shows that during the three-year period, the percentage of students receiving alternative learning placements during long-term suspensions increased from 52% to 70% of long-term suspended students. (This data was not collected in the most recent study.) The number of days of school lost, however, remains

large. The report gives responses from a survey of LEAs by the DPI. In the 98 of 117 LEAs responding, a total of 160,542 school days were lost. That is, there were 160,542 days in which students were suspended long-term or for 365 days and were not given education alternatives – the equivalent of a full academic year lost for just under 900 students.

The lost days of school relate in rather obvious ways to the gaps in performance: if students are not present to learn, their performance will obviously suffer. Furthermore, research finds that suspensions are ineffective at addressing the behavior problems, so that when the student does return, the behavior will continue to disrupt that child's education, as well as the education of other students. (Herzog, 2000; Hyman & D'Alessandro, 1984). Suspension may even exacerbate problems because it tends to alienate students who need the exact opposite -- stronger bonds with the school. (Appalachia Educational Laboratory, 1998).

There are several proven approaches to reducing lost days of school and improving behavior to provide a better educational climate for all students. We have already cited clear evidence that pre-school programs for at-risk students and smaller classes in the early grades produce reductions in classroom disruption, suspensions, and expulsions throughout students' subsequent school careers. Previously cited factors that reduce school dropout – such as smaller schools or smaller units within school, involving students in extracurricular activities, and even modest efforts by teachers to make personal links with individual students – also tend to reduce suspensions. The forms of additional assistance for students who fall behind that are discussed in the next section can further cut suspensions.

Improved behavior management can also head off behavior problems before they reach a level that might prompt suspension. Behavior is better managed in schools that create a culture of high academic and behavior expectations; promote student engagement and attachment – both in the classroom and through other school programs; intervene early to address students who do not meet behavior expectations; and have clear classroom management plans. (Black, 1997; Appalachia Educational Laboratory, 1998) In each of these areas, there are numerous research-proven strategies, including Saturday school for behaviorally at-risk students (Winsborn, 1992); counseling-based alternative education programs for at-risk students seriously in trouble (Heger, 1992); a "peace curriculum" that is integrated into content academic areas and encourages students to develop alternatives to disruptive behaviors (Speirs, 1994); and programs focused on bullying behaviors (Smith & Madsen, 1996).

Fewer days are also lost in schools that have developed a fuller complement of alternatives to suspension, (Morgan-D'Atrio, 1996; Short, 1993). A number of different strategies can provide more effective consequences than suspension for behavior that does not meet expectations, including community service (Malesich, 1994), visiting local prisons (Malesich, 1994), effective in-school suspension programs (Education First Task Force, 2002), and various in-school programs and services.

If a student's behavior is so severe that suspensions are mandated by state law or local board policies aimed at maintaining safe schools, then providing alternative education during the suspension will help avoid lost days and provide the opportunity to address behavior issues. The Department of Public Instruction has done extensive evaluations of the alternative education programs in North Carolina public schools. These find that while the vast majority of school districts have some type of alternative education program in place, the programs are often not designed to serve severely disruptive students. Research on alternative education programs in other states also points to critical factors

for successful programs (Houck, 1997; Neeld, 1999). Texas chose to approach the issue statewide with a university/school/community partnership that provides intensive technical assistance to schools to develop more effective programs and policies.

In summary, then, many of the steps discussed in earlier or subsequent sections of this report can reduce suspensions, as can improved behavior management strategies in the classroom and various alternatives to suspension. If suspension becomes absolutely necessary, providing educational programming during suspension can reduce lost instructional time and improve the odds that once students do return, they will be successful enough to avoid recurrences. At present, districts are encouraged but not required to provide instruction while a student is suspended from school. Many districts do, some tapping into the well-known Web Academy developed by the Cumberland County Public Schools partly for this purpose. If a state requirement went beyond Web-based services to mandate in-person instruction or instructional support, additional funding from the state would be needed to implement the requirement in many districts.

#### Reduced, More Equitable, and More Appropriate Referrals for Special Education

A recent National Research Council report, *Minority Students in Special and Gifted Education*, provides an exhaustive review of research on minority participation in special education, including the questions of (1) how to support children in the regular educational environment so that special education services are not necessary, (2) how to create referral processes that objectively assess a child's needs for additional services and avoids any taint of cultural bias, and (3) how to provide effective special educational services so that appropriately referred children benefit from the placement (National Research Council, 2002).

The report finds that many children do not need special education if effective interventions are made early in the child's schooling. Two of the most frequent causes for referrals into special education, reading and behavior problems, can be reduced sharply through early childhood programs aimed at addressing shortcomings in the child's development, effective reading programs, and sound classroom management strategies in the regular classroom environment. Teachers can also be trained to identify children who need additional interventions, whether implemented by the teacher in the regular classroom environment or by other specialists at the school. It is only after these processes have been implemented that special education placements should be considered for children that still are not successful. Such early identification and intervention clearly requires greater collaboration and integration of services between regular and special education.

On the specific question of why minority students are often overrepresented in special education, the NRC report presents several relevant findings. First, some children from minority groups suffer higher incidences of conditions that impair their development. For example, poverty is associated with significant health risks, including poor nutrition, low birth weight, and exposure to toxins, including lead, alcohol, and tobacco. Poverty may also cause children to suffer from low-quality childcare environments that do not support normal emotional and cognitive development. Thus, some of the overrepresentation may simply reflect the added barriers to social and cognitive development that many minority children face.

But research also points to ways in which schools themselves cause more referrals. As we noted earlier, minority students are more likely to be in schools with fewer resources and less qualified teachers. The same students who are referred to special education in these schools might be successful in the regular classroom environment in schools with adequate resources and qualified teachers. Schools also may contribute to

overrepresentation because of the referral process itself. Research is mixed on whether teachers have a racial bias that affects their decision to refer a child. The research does suggest that some assessment systems are not adequately sensitive to issues of gender, ethnicity, developmental level, or contextual factors. It is essential to assure that the child's culture is reflected in assessment instruments. Legally, schools are required to give parents an important role in the referral process. But research shows that while minority parents have high aspirations for their children, they have a harder time advocating effectively for their children in referral processes than do white families. Thus, it seems wise to involve professionals from the child's culture or background in the assessment and identification process.

For students appropriately placed in special education, the issue is making sure that they benefit from the placement. The NRC reports summarizes a great deal of significant research about effective strategies that can be used for special education students in both the regular classroom and other school environments. The issue is how much these strategies are being employed by regular and special education teachers. The NRC found that the knowledge and use of these effective strategies varies greatly across schools and even among teachers within schools, and thus recommends extensive training based on this research.

Access to the Curriculum for English Language Learners. Approximately 52,000 of North Carolina's students are dealing with the task of learning English on top of the task of mastering the academic content of the Standard Course of Study, and the number of English language learners in our schools continues to grow rapidly. The question is how to help these students gain access to the curriculum as effectively and rapidly as possible. Research in this area has been highly politicized, with authors' own ideological preferences often tingeing or even supplanting empirical evidence about effectiveness. Recently, however, a major report from the National Research Council (August and Hakuta, 1998) and a small number of additional articles have taken a more balanced, evidence-based approach, and these shed some light on the best path to the curriculum for English language learners.

The debate has sometimes been framed in terms of two extremes: whether it is better, on the one hand, to teach the standard curriculum to English language learners in their first language or to simply immerse them in English and insist that they grapple with the curriculum in their new language. There are, of course, more sensible intermediate positions, and one of these involves so-called "content-based English as a Second Language." In content-based ESL, English language learners are given some initial language instruction before entering a regular classroom, but as soon as they attain even a basic grasp of English, move into the mainstream while continuing to get help in learning the English they need to engage successfully with the content of the standard curriculum. That is, the continued language instruction is tailored specifically to the demands of the regular curriculum rather than consisting of generic instruction in English vocabulary, grammar, conversational skills, and the like.

The very lack of research consensus on any other approach has driven many schools toward such content-based ESL instruction. Content-based ESL addresses some of the common criticisms of other ESL approaches: "... many of the [ESL] programs allow English language learners to fall behind native English speakers while they are learning English, some are not academically challenging, and some are simply poorly implemented" (Thomas & Collier, 1997). Language instruction that is closely linked to the standard academic curriculum seems especially helpful to English language learners of middle and high school age: "Time and interest take their toll on our students' educational careers: time because many students do not have 5-7 years to master English before

approaching a content course in the US educational system; interest because a grammar-based curriculum is not particularly appealing to a student who wants to fit into the school environment" (Short, 1993, p.10).

Though content-based ESL often seems the most pragmatic approach to giving English language learners rapid access to the standard curriculum, providing instruction in the student's first language while he or she is learning English can also be quite helpful. Many educators have worried that if non-English speakers continued to use their first language in school, their learning and use of English would be compromised. Research on literacy development and second language acquisition now shows, however, that literacy skills in one's first language can provide an important foundation for second language learning (Cummins, 1991; Nieto, 1992; Olsen & Mullen, 1990; Wong-Fillmore & Valdez, 1986; in Texas Education Agency, 2000). Until a student's English ability is developed enough for complex thinking, it seems wise and efficient when feasible to use his or her first-language skill to build content knowledge and understanding. A bar to using this additional learning resource is the limited number or outright unavailability of teachers who are proficient in many students' first language. In North Carolina, even Spanish speaking teachers are in short supply, to say nothing of Hmong, Chinese, Arabic, and other languages. The facts of teacher availability rule out bilingual instruction in many cases.

In addition to the kinds of support that English language learners get to support their learning in regular classrooms, the character of the instruction in academic subject matter also affects the success of ESL students. For example, the use of models, demonstrations, and hands-on learning activities can also give English language learners better access to academic curriculum content (Office of Bilingual Education and Minority Language Affairs, 1995). More broadly, close attention to how individual students are misunderstanding, struggling with, and coming to understand the content is at least as important for the success of ESL students as for other students. Instruction that cues on individual students' miscues, struggles, and successes is often referred to as "student-centered" instruction to distinguish it from teaching practices that are employed on a standardized basis, without sensitivity to individual student needs and learning processes -- so-called "teacher-centered instruction."

Preparation to work with ESL students has often reinforced such standardized, teacher-centered instruction through a "paralyzing focus on methodology" rather than on the content of instruction and how different students learn the content (Gonzalez & Darling-Hammond, 2000). This finding -- which is strikingly consistent with the broader conclusions from the research literature on professional development summarized in the foregoing section on state policy actions -- should guide the design and implementation of the professional development for teachers.

A study of seven Texas schools that were particularly successful with English language learners also confirms the value of such training for administrators and suggests additional attention to language proficiency assessment for administrators (Texas Education Agency, 2000). The Texas successful schools study also emphasizes that the principals were all strong instructional leaders who worked hard to cultivate instructional coherence, and who cited common teacher planning time as crucial to the development of such coherence. Here again, the parallel between this research on educating ESL students and the previously cited, entirely separate research literature on the power of instructional coherence is very striking. When findings are arrived at independently in such separate literatures, they deserve close attention.

Two other recommendations concerning English language learners emerged from the reports we were asked to review: funding to translate state forms and basic school information into the languages spoken by the major non-English-speaking populations served by North Carolina's schools, and funding for LEAs to provide translators or interpreters to enable them to communicate more readily with parents. While we were unable to locate specific research to address these recommendations, both seem warranted simply on the basis of the state's obligation to provide equal educational opportunity for its citizens. Certainly there is abundant research to support the propositions that parents play key roles in setting expectations for and supporting their children's learning, and that active efforts by teachers and principals to communicate with parents do increase parents' involvement in their children's learning. Translations of forms and much other information could be done most efficiently at the state level.

Equity in Grouping. The way students are grouped for instruction can narrow or widen achievement gaps. The net impact of so-called "ability grouping" appears to be a trade-off between two sets of effects: (1) the potentially positive effect of narrowing the range of skills that a teacher must accommodate in instruction, and (2) the potentially negative effects of undermining the confidence of low-group students, expecting less of them, and limiting their opportunities to learn. On average, ability grouping helps students only if it is done in a way that maximizes the positive effects and minimizes the negative ones.

By grouping students for only one or two subjects, re-grouping them for different subjects, and revising the groups on the basis of frequent reassessment, teachers can reduce the range of skills in each group without communicating that little is expected or demanded of students in low groups. In contrast, keeping students in the same groups or classes for all subjects – "comprehensive grouping" – tends to stigmatize students in low groups. It seems to tell them that not much is expected of them. And it deprives them of the opportunity to learn the more advanced material available to students in higher groups (Slavin, 1987a; Slavin, 1987b). By contrast special accelerated programs result in significantly more learning for the "gifted" students they serve (Kulik & Kulik, 1987).

What, then, are the implications for efforts to reduce achievement gaps? It seems wise to avoid "comprehensive grouping," and at most, to group students for one or two subjects. Further, it is essential to ensure that minority students are proportionally represented in accelerated programs for gifted students. Without equitable representation, programs for the gifted will widen achievement gaps. A recent NCDPI-commissioned study showed that across North Carolina, African-American students are sharply underrepresented in programs for academically and intellectually gifted (AIG) students. During the 1999-2000 school year, black students represented about 30 percent of the overall student population, but only about 10 percent of the enrollment in AIG programs (Darity, Castellino & Tyson, 2001).

Especially in light of the dangers associated with grouping students of similar ability, a strong case can also be made for "cooperative learning," in which students of different abilities are deliberately assigned to work together in small groups to complete a learning task. If all students in a group are rewarded on the basis of what every student in the group learns, cooperative learning can be productive for high-performing as well as lower-performing students (Slavin, 1987a; Slavin, 1987b).

Equity in Tracking. Curriculum tracking goes beyond simply grouping students of similar ability to offering students in different tracks significantly different sets of courses. Tracked instruction provides an advantage to high achievers by exposing them to material that is simply unavailable to students lower tracks. Students' opportunities to

learn place a ceiling on what they can learn. And upper tracks have substantially higher ceiling than lower tracks have.

Because minority students are underrepresented in higher tracks and overrepresented in lower tracks, current tracking practices often widen learning gaps. The NCDPI-commissioned study mentioned above reveals such a pattern in districts all across North Carolina. For example, although African-Americans represent about 30 percent of the total student population, only about 13 percent of the students enrolled in the most frequently taught Advanced Placement courses are black, and only 7 percent of students who took at least one AP examination were black (Darity, Castellino & Tyson, 2001).

Some researchers who have studied tracking extensively have called for a complete abolition of the practice (see, for example Oakes, 1985). Others have challenged the research underlying the call for an end to the practice. Whatever the merits or demerits of tracking, the practice seems unlikely to disappear from North Carolina's schools. Too many parents believe that tracking enables their children to get a better education and better chances at admission to selective colleges than would an untracked curriculum. If tracking is maintained, it is essential for schools to assure that minority students are distributed across tracks in roughly the same proportions as they are found in the schools' total population.

There is good evidence that requiring students to take more challenging, college-oriented courses does raise their test scores, and does so without harming minority or low-income students (Porter, 1998). In fact, minority and low-income students seem to benefit more than others from stronger course requirements. The courses a student takes are an extremely powerful influence in determining his or her success in college – more powerful than socioeconomic background (Adelman, 1999).

The UNC Board of Governors recently increased the minimum course requirements in mathematics and foreign language. If minority students are included equitably in college-bound tracks, the new policy should improve their test scores and their chances of success in college. But if they continue to be underrepresented in the higher tracks, the tougher course requirements could actually widen the gaps between minority and white students. The ultimate impact of the University policy depends on the action of local schools and districts.

### **Help Students Who Still Fall Behind**

Even with strong pre-K programs, small classes in the early grades, strengthened reading programs, aligned curriculum and stronger teaching, and equalized opportunities to learn, some students will still fall behind. Research offers clear guidance about what to do – and not to do – for students at risk of retention. First, what not to do. A 1997 evaluation of the federal Title I program showed that many common ways of using Title I funds are ineffective, including the use of classroom aides, reductions in class size that are too small to bring classes below the threshold of about 18 students, and “pull-out” small group remediation (Puma et al., 1997).

In contrast, individual tutoring does appear to be effective. Research on tutoring specifies characteristics of both effective tutoring practices and effective tutors (Slavin & Madden, 1989; Wasik & Slavin, 1993; Ross et al., 1995). Effective tutoring is done one-on-one, supplements rather than supplants normal classroom instruction (not “pull-out”), and focuses on the regular curriculum, the curriculum students are having trouble with in the classroom. Programs that spell out very clearly just what tutors should and should not do are more effective than programs that leave the approach to the discretion of each individual tutor. In most effective programs, tutors



model or demonstrate the skills to be learn, then coach the student through the process, gradually reducing the "scaffolding" as the student grows more proficient.

Not surprisingly, the most effective tutors are certified teachers. What may surprise some, however, is that tutoring of younger students by older one ("cross-age tutoring") seems to have the next largest net effect on student learning – large than tutoring by aides or volunteers. In part, this may be because the student tutors themselves learn along with the students they are helping – learning by teaching. Paraprofessional or aides have generally not been found to be effective tutors, but there is some evidence that if the aides are selected specifically for their good reading and writing skills and are given proper training, they can be effective (Farkas, 1998a; Farkas, 1999b).

Over the past five or six years, interest in and funding for after-school programs has risen sharply. The programs were first touted as ways to provide supervision for children whose parents were not at home when school was out, thus reducing opportunities for troublesome behaviors and providing enriching experiences for them (Fashola, 1998). More recently, the emphasis in many of these programs has shifted to the improvement of academic outcomes for low-achieving students. Some studies suggest that academically-focused after school programs improve at-risk children's social skills and work habits, but evaluations of specific well-defined after school programs have been inconsistent. The trend toward programs that are linked to state and district goals and that serve at-risk students is so recent that too few sound studies have been performed to yield a clear and trustworthy pattern of results. Nevertheless, the logic supporting after-school programs is compelling, and perhaps as a result, federal funding for one such program -- 21<sup>st</sup> Century Community Learning Centers -- has risen meteorically, from a few million in the mid-nineties to \$1 billion in the present year. Related research suggests that local districts should use the funds to support after school programs which are closely linked to state standards and the local curriculum, which are staffed by qualified teachers and other staff, and which provide one-on-one tutoring to at-risk students (Fashola, 1998).

Well-structured summer programs that focus squarely on the skills and knowledge in the regular curriculum can help students who remain at risk of retention even after they have received tutoring during the academic year (Roderick et al., 1999; Roderick et al., 2000). The Chicago Public Schools provide a six to seven week "Summer Bridge" program that is taught by qualified teachers, features small classes (sixteen students or fewer), and allows for individual attention (one or more tutors per class). The program has cut retentions substantially.

Yet as the lead researcher on the Chicago study makes clear, some students who get extra assistance during the school year and go through the summer program still do not meet promotion standards (Roderick, personal communication, May 3, 2001). Roderick argues that these students must have problems that go well beyond a lack of specific skills and knowledge, such as vision, hearing, medical, neurological, behavioral, or family difficulties or some combination of these. They need, she says, thorough diagnosis and follow-up treatment by a team of health, mental health, and social services professionals.

To address the needs of students like these, some have proposed a "service integration" approach, in which the systems established to meet these several non-academic needs are brought together in school or community-based centers. The argument is that (1) operating separately, these systems are ineffective and inefficient in meeting the needs of disadvantaged students, leaving high rates of school failure, dropout, teen pregnancy, delinquency, and family break-up, and (2) by integrating the separate services around individual students, who often have multiple difficulties, these problems could be addressed far more effectively, thus reducing minority achievement gaps and improving these students' life chances (Annie E. Casey Foundation, 1995)

Although the rationale for service integration or coordinated services efforts is compelling, research and evaluation have not yet produced adequate evidence on their outcomes to support a clear judgment of effectiveness (National Research Council, 1999). The studies that do exist are mixed. For example, in the late 1980s the Annie E. Casey Foundation launched the New Futures initiative, giving each of five mid-sized cities between \$7.5 and \$12.5 million to restructure the way they delivered services to at-risk young people. The title of the Foundation's own report on the venture sums up one main lesson from the project rather starkly: The Path of Most Resistance: Reflections on Lessons Learned from New Futures (Annie E. Casey Foundation, 1995). That is, overcoming the barriers to collaboration across separate bureaucracies and the diverse communities they serve was itself a daunting task. The evaluators found some significant gains, including reductions in the numbers of students performing at low levels on reading tests, reductions in sexual activity among teens, and increased use of birth control along those who were sexually active. But there were no reductions in annual dropout rates, teen pregnancy, or college acceptance or employment. The discouraging New Futures results were corroborated by the failure of the Children's Initiative undertaken by the Pew Charitable Trusts, projected as an 11-year, \$56 million effort with five states, but aborted after two years and \$5 million in expenditures (Sommerfeld, 1994. in National Research Council, 1999).

Despite the setbacks, both foundations express continued belief in such ventures, calling them "the only plausible way to address the multiple needs of at-risk children and families" (Annie E. Casey Foundation, 1995, in National Research Council, 1999). Given the experience of these two major efforts, however, we suggest that districts may do better to proceed in more limited, less ambitious ways. That is, schools and districts should, as Roderick argues, assure that students who risk retention or are retained despite extensive academic assistance do receive careful diagnostic screening for a range of possible problems, but services from beyond the education system can be coordinated on a student-by-student basis without taking on the formidable task of integration across the systems that provide such services.

### **Increase Parent and Community Involvement**

Research leaves little doubt that parents' involvement in their children's learning promotes higher performance (Henderson & Berla, 1994). Some researchers make very strong claims about parents' impact: "Three factors over which parents can exercise authority – student absenteeism, the variety of reading materials in the home, and excessive television watching – account for nearly 90% of the differences ... in [student] achievement across states" (Ballen & Moles, 1994). Whether parents' role is quite this powerful may be a matter of debate. But research has shown that students whose parents are involved in their learning earn higher grades and test scores, attend school more regularly, and are more likely to graduate from high school than are students without such family involvement in their education.

Though there are good reasons to involve parents in their children's schools, it is the things that parents can do with their children at home that make documented, measurable differences in their achievement (Odden, Memorandum Commissioned by the NC Education Research Council, 2002; see, for example, Steinberg, 1997). More specifically, research indicates that school performance has improved by certain very basic actions that parents can take at home:

#### **In the very early years**

- talking with their child in elaborated ways (not just brief statements made for strictly functional reasons)
- asking open-ended questions of their child (not just questions that can be given one-word answers)
- reading to their child

During all of the school years

- providing a specific, quiet place for homework
- insisting on a time for homework
- checking on daily assignments and checking that homework is completed

At the secondary level, especially high school

- insisting that the student take a large core of academic classes
- discouraging the student from taking numerous non-academic electives
- talking about college, insisting on courses that would qualify the student for college, and working with the student to identify viable colleges to attend

(Odden, Memorandum Commissioned by the  
NC Education Research Council, 2002)

A growing body of research also shows that active efforts by schools to engage parents can raise levels of involvement for parents of all backgrounds (Henderson & Berla, 1994). In light of such evidence, the Bridges Commission recommended a statewide public information campaign targeted at parents (especially those with underachieving students) and communities to raise awareness of attitudes and practices that are critical to raising student achievement. The campaign would draw attention to the importance of children thinking of themselves as academic achievers; encourage cooperative relationships between home and school, discourage excessive television watching, and encourage mentoring programs.

We were unable to identify research that deals specifically with public information campaigns to influence minority parents' and students' attitudes and behavior related to schoolwork and learning. But research on the impact of public information campaigns designed for other arenas of attitudes and behavior is instructive. First, to be effective, such campaigns apparently must focus on very specific behaviors (Weiss & Tschirhart, 1994). Some of the factors cited by the Bridges Commission, such as reducing television watching, seem to meet this test, as do certain other keys to achievement, such as assuring attendance, making sure that a variety of interesting reading materials are available in the home, and checking on homework. But factors related to students' self-image or attitude, such as whether students think of themselves as academic achievers, seem to be less readily amenable to change via public information campaigns.

Effective campaigns must also be sustained, getting the message to target audiences repeatedly, in appealing formats, through channels they regard as trustworthy and authoritative. Designing, testing, producing, and delivering messages through general audience channels can be very expensive, and much of the funding expended on such campaigns would be "spilled" onto or wasted on audiences other than the target audience. More targeted campaigns via such channels as radio stations or publications popular with minority audiences, would reduce the waste involved in "broadcasting" messages to a diffuse general audience. It is possible that such media channels would agree to produce and deliver the messages as a public service rather than commercially, but the media channels then generally allocate less lucrative time spots for such a campaign, reducing its effectiveness significantly.

If the object is to get specific, well-designed messages to parents of minority and low-income children, however, direct distribution or direct mail are likely still more targeted and less expensive than these media channels. Professional assistance in designing and creating the messages might still be engaged, but the actual delivery of the material could be done more directly than through broadcast channels.

As the annual First in America report reflects, there are several other things that teachers and schools can do quite directly to promote parent involvement in their children's education: give parents written interim reports on their children's progress between report cards, ask parents to sign off on homework, give parents written information about the school's overall performance on standardized tests, make phone calls or send notes to parents about particularly good performance or behavior by their child, and give parents examples of student work that meets high standards. Teachers and administrators could also visit parents and students in their own home to discuss the student's progress, any difficulty that he or she might be having, and ways that the parents might help improve their children's behavior or performance in school.

### **Desegregate Schools and Programs Within Schools**

Until recently, one might have assumed that desegregation is a step that has already been taken. Some would also argue that the results did not justify the extraordinary social and political dislocations that accompanied it – that what matters is not “who sits next to whom” in schools, but the quality of all schools. Yet there is strong evidence that segregation is neither a thing of the past nor merely a superficial matter of who sits next to whom. North Carolina's schools are resegregating at a rapid pace. In 2001, North Carolina had 220 schools with minority enrollments of 80 percent or more – double the number of such schools in 1993 (Simmons & Ebbs, 2001). In substantially desegregated North Carolina schools, just over half of African-American students (51.1%) scored at or above grade level on state tests. In segregated schools, the figure was 7.5 percentage points lower (43.6%) (Simmons & Ebbs, 2001). Middle class black students actually suffer the greatest damage from segregation, scoring significantly lower in segregated schools than in an integrated setting.

Just how segregation impairs minority students' performance is uncertain. But there is clear evidence that schools with a substantial white presence get more resources of the sort that matter to school achievement, such as good teachers and access to instructional materials (Grissmer et al., 2000). Predominantly black schools have much higher percentages of uncertified and inexperienced teachers than do predominantly white or integrated schools.

If desegregation makes such a difference in student learning, why has research using large national data bases generally found the effects to be so modest? One reason may be the patterns of resegregation within nominally desegregated schools. As mentioned above, research has found that the percentage of black students in Academically and Intellectually Gifted programs, Honors, Advanced Placement, and International Baccalaureate programs and courses is generally substantially lower than the percentage of black student in the schools (Darity, Castellino, & Tyson, 2001). So “desegregated” schools often harbor resegregation within the school, which masks the contribution of desegregation to improved student learning.

In sum, separate is not equal, either in terms of the resources devoted to African-American students in segregated schools, or in terms of the resultant student learning. Desegregation of schools and within schools helps equalize opportunities to learn, expectations, discipline, key resources, and student achievement.

With federal courts no longer pressing school districts to desegregate schools or to keep schools desegregated -- indeed, with the courts increasingly ruling out race-based student assignment plans -- there is little external incentive for many local boards and superintendents to address this issue. Disaggregation of student test scores and modification of the ABCs accountability system along the lines already suggested is one of the few approaches we can envision to increase incentives to desegregate, and even this approach depends on local districts to recognize that concentrating economically disadvantaged and minority students in a few schools will make their task far more difficult than would a more even distribution of these students. The socioeconomically-based approach taken by Wake County appears to be one of the few legally

viable options available to districts that recognize desegregation as a useful instrument for reducing achievement gaps, yet as recent newspaper coverage has informed us, this approach has only a limited impact on racial segregation.

Thus, how to hold the line against resegregation of our schools -- not to mention achieving further desegregation of them, is not clear. Yet we continue to believe that desegregation is an important tool for closing minority achievement gaps, and that desegregation remains the right thing to do for the future of our children and our state.

## CONCLUSION

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Overall, then, existing research on closing minority achievement gaps now warrants taking a small number of actions on a statewide basis: (1) adjustments to the ABCs accountability system to incorporate incentives to close the gaps, (2) extension of high quality, academically-focused pre-Kindergarten programs to all at-risk four year olds, (3) reduction of class size in kindergarten through third grade, and (4) preparation and professional development that are clearly focused on the subject matter to be taught and learned, how diverse students learn it, and how it can be taught in a way that is sensitive to different cultural backgrounds.

Research also supports a number of steps that would best be taken at the district level: (1) raising expectations for minority and at-risk students by communicating the new accountability demands to schools and classrooms throughout the district; (2) putting their education on a sound footing through pre-K programs, smaller classes, and better reading instruction; (3) increasing the coherence of the instructional program offered by each school; (4) strengthening teaching and instructional leadership through sound professional development and more equitable distribution of qualified, experienced teachers; (5) equalizing opportunities to learn the subject matter required to succeed on tests, make steady progress from grade to grade, and graduate; (6) offering effective help to students who still fall behind despite the foregoing steps, (7) increasing parents' involvement in their children's education, especially through actions they can take at home; and (8) desegregating schools and programs within schools.

Some districts have the resources and central office capacities to take these steps on their own. But many do not. So the state should initiate and fund a pilot project to help a small number of districts to analyze the particular gaps within their own student populations, review the educational programs they are offering their students, revise existing programs and adopt new ones in light of the research reviewed here, reallocate resources to support implementation of the revised and new programs, and make additional adjustments as necessary. The technical assistance project should include a documentation and evaluation component to track the changes that are made and assess their effectiveness. If existing resources are not adequate to make some of the needed improvements, the project should report this to the State Board of Education, Education Cabinet, and Joint Legislative Education Oversight Committee, along with an estimate of the additional resources that are required and the uses to which they should be put.

At this point, we make no specific recommendation regarding what agency or agencies should operate or commission the technical assistance project. It seems crucial, however, for whatever entity actually delivers and evaluates the project to have a full and firm command over the research reviewed in this report, as well as related research that emerges over the coming few years. Further, the entity should have sufficient independence of both state and district policy to offer assistance based on substantive considerations and to assess and report results dispassionately.

If the project succeeds in reducing achievement gaps in the pilot districts, it should be expanded to offer assistance to other districts throughout the state.

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# APPENDIX A

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## REPORTS REVIEWED

### **#1 Identification of Disabilities**

Thomas Farmer, Jason Clemmer, & Elizabeth Farmer, N.C. Department of Public Instruction, *Interim Report on the Connection Between the Identification of Minority and At-Risk Students as Students with Behavior or Emotional Disabilities and the Gap in Student Achievement*, May 15, 2001.

Purpose: Session Law 2000-67, Sec. 8.28(a) requires the State Board to study the connection between the identification of minority and at-risk students as students with behavior or emotional disabilities and the gap in student achievement. The State Board was asked to review the process by which students are identified with these disabilities, the soundness and rigor of the curricula for these students, use of related services to improve success of students, and qualifications of teachers assigned to work with these students.

### **#2 Identification in AP/AG Classes**

William Darity, Jr., Domini Castellino, & Karolyn Tyson, North Carolina Department of Public Instruction, *Report on Increasing Opportunity to Learn via Access to Rigorous Courses and Programs: One Strategy for Closing the Achievement Gap for At-Risk and Ethnic Minority Students*, May 15, 2001.

Purpose: Session Law 2000-67, Sec. 8.28(b) requires the State Board to study underrepresentation of minority and at-risk students in honors classes, advanced placement classes, and academically gifted programs. The study includes review of eligibility criteria and impact of low academic expectations or instructional practices, such as tracking, on the underrepresentation.

### **#3 Minority Achievement Report Card**

Department of Public Instruction, *Report to the Commission on Improving The Academic Achievement of Minority and At-Risk Students and the Joint Legislative Education Oversight Committee on the Development of a Minority Achievement Report Card*, November 2000.

The report concludes that the existing report, A Report Card for the ABCS of Public Education, Volume II, can be expanded to report results for racial/ethnic groups at the school level.

### **#4 Guidelines for Local Task Forces**

Department of Public Instruction, *Report to the Commission on Improving the Academic Achievement of Minority and At-Risk Students and the Joint Legislative Education Oversight Committee on the Guidelines for Local Task Force on Closing the Achievement Gap*, November 2000.

Purpose: Section 8.28(d) of HB 1840 required the SBE to develop guidelines for local task forces that advise and work with the district on closing the gap.

#### **#5 Diversity Training and LEP Support**

Department of Public Instruction, *Report to the Commission on Improving the Academic Achievement of Minority and At-Risk Students and the Joint Legislative Education Oversight Committee on the Plan and a Five-Year Budget for Diversity Training And For Implementing Sufficient Educational Support For Limited English Proficient (LEP) Students*, December, 2000.

Purpose: Section 8.28 of HB 1840 required the SBE to provide a plan and budget for implementing specific strategies aimed at closing the gap by improving teachers' abilities to work with diverse students and providing better support for LEP students.

#### **#6 Complaints Hotline**

Department of Public Instruction, *Report to the Commission on Improving the Academic Achievement of Minority and At-Risk Students and the Joint Legislative Education Oversight Committee on the Hotline to Collect Complaints Alleging Disparate Treatment of Minority Students and Students from Low-Income Families*, November, 2000.

Purpose: Section 8.28(f) of HB 1840 requires the State Board to develop a plan to establish a state-level hotline to collect complaints alleging disparate treatment of minority students and students from low-income families and provide processes for state and local investigations.

#### **#7 Suspensions and Expulsions Report**

Department of Public Instruction, *Report on the Study of Student Suspensions and Expulsions from 1997-98 and 1999-2000, January 15, 2001*. Submitted to The Commission on Improving the Academic Achievement of Minority and At-Risk Students and The Joint Legislative Education Oversight Committee.

This report does not provide recommendations or conclusions regarding best practices. It does indicate that more students have been long-term suspended over the past 3 years, from 6,098 in 1997-1998 to 7,466 in 1999-2000. It also shows that more students are receiving alternative learning placements during suspensions, rising from 52% to 70% during these years. Black and multiracial students have the highest proportion of LTS.

#### **#8 Historically Minority Colleges & Universities Initiative**

The Research Council has not received the final version of this report. The interim report contains no recommendations.

#### **#9 DHHS Pilot Program Report**

North Carolina Department of Health and Human Services, *Report to the General Assembly on Closing the Achievement Gap Initiative*, December 2001.

Purpose: The General Assembly had required DHHS to organize pilot projects related to strengthening families as a means of closing the gaps (Section 11.4A, HB 1840). The pilots were to target families who have at least one child in elementary school who is performing a year or more below grade level and whose family income is less than 200% of poverty level. An initial allocation by the General covered the costs of two-day workshops in which participants focused on aspects of a local plan. Due to the budget crisis, the General Assembly did not provide funding needed to continue the project to the next stage of funding the implementation of local models. The collaboration workshops were considered successful in helping communities identify action steps, some of which have been implemented through other funding options.

#### **#10 DPI Disaggregated Data Pilot Program**

Department of Public Instruction, *Results of the 2000-01 ABCs Pilot Program to Test and Evaluate a Revised School Accountability Model for the ABCs Plan*, December 2001.

Purpose: Section 8.36 of Session Law 1999-237 requires the SBE to establish a pilot program for modifications to the ABCs accountability program and to report the results. The pilot program used the ABCs model and disaggregated data by race/ethnicity and poverty at the school level. The ABCs was further modified in SB 1005 Section 28.30(a) that requires a closing the achievement gap component be added by the beginning of school year 2002-2003.

#### **#11 Commission Report**

Robert Bridges, *North Carolina Commission on Raising Achievement and Closing Gaps, First Report to the State Board of Education*, December 2001.

Purpose: The State Superintendent and State Board of Education established the Commission. This is the first report of the Commission.

# APPENDIX B

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## REVIEW OF RECOMMENDATIONS TO CLOSE MINORITY ACHIEVEMENT GAPS

Below we summarize the recommendations from the various reports we were asked to review and provide our research-based commentary on them. Recommendations from different reports are grouped for economy and for clarity of organization. The numbers provided for each set of recommendations correspond to the numbers given the reports in Appendix A, which lists the 11 reports and states the purpose of each very briefly. In the Research Council commentary, we refer the reader to the pages of our own report that summarize the related research.

### STATE-LEVEL ACTIONS

#### I. Accountability

- Recommendations from Reports: As now required by federal legislation, include a closing the gap component in the state testing program and track success of schools, school districts and the state in having all identified groups perform at or above grade level by 2014, Reports #2, #11, #3, #10.

Research Council Commentary: Research supports this recommendation (see pages 4 – 7 of the text of this report).

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- Recommendations from Reports: In addition to testing results, monitor other factors through reporting requirements. Factors or reports include (1) data on punitive and restrictive placements for African American youth, Report #1; (2) number of minority students with potential for AIG services by adding "high potential" as a component to the State's annual headcount, Report#2; (3) school level data to monitor progress towards reducing/eliminating the disproportionate number of minority students assigned to special education programs, Report #11; (4) school level data on parental involvement that includes an annual plan, parental involvement records focused on parent-school interactions regarding their own child at school, and voluntary home visits by teachers and administrators. Report #11

Research Council Commentary: Research does indicate that these factors figure importantly in accounting for minority achievement gaps and warrant close attention. They are discussed in the sections of our report on equalizing opportunity to learn (pages 22 – 30) and on parent involvement (pages 32 – 34). The NCDPI and Research Council should consider them carefully for inclusion in the school report cards called for in the No Child Left Behind Act. We do caution, however, that if the total burden to report data grows very far beyond what is already required of local districts, the data reporting may distract districts' attention and energy away from making substantive improvements, which could undermine local commitment to these substantive changes. Research on implementation indicates that such local commitment is essential.

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- Recommendations from Reports: Implement additional state and local policies that set standards related to closing the gap. Policies include (1) a state advisory committee to the state superintendent that will provide guidance in reviewing

implementation guidelines for student accountability standards and promotion policies for LEP students, including instructional portfolios and waiving test standards for LEP students at a cost for the committee of less than \$10K per year, Report #5; and (2) district-wide policies regarding and monitoring academic progress of minority students, Report #2.

Research Council Commentary: *Research cannot offer much guidance on whether it would be useful to create the state advisory committee called for above. Research does suggest that the process of acquiring full competence in a second language often takes as much as five or even seven years, and that until full competence is achieved, it is difficult to sort out the meaning of a student's assessment results – the question being how much the results reflect subject matter mastery and how much they simply reflect language competence. In addition, translated versions of tests are often of questionable reliability and validity when used in place of tests administered in English. Research suggests that promotion standards for English language learners should not rely solely on standardized tests. Whenever possible, promotion decisions should be made with evidence based on class work: portfolios, and/or written and oral assignments. There is support for the proposition that promotion standards do motivate students to work harder in school, and this is reflected in their test results. If the state-level committee called for in the recommendation were created, it should consider the proven beneficial effects of promotion standards along with the research on the length of time required for full language acquisition. Test-taking accommodations for students with limited English proficiency, such as extended time, are supported by research and might be offered without waiving promotion policies altogether.*

## II. Capacity

Pre-K Programs: The reports under review offered no recommendations concerning pre-kindergarten programs, but research does offer strong support for them(see pages 7 – 8).

Reduce Class Size: The reports under review offered no recommendations concerning reducing class size, but research does offer strong support (see pages 8 – 10).

### Professional Development for Teachers and School Administrators

- Recommendations from Reports: Develop and fund programs designed to make the college and university system effective in preparing teachers and administrators for working with diverse populations. Specific measures include (1) providing special seminars and course development for existing university teacher education faculty designed to ensure that they command and model the specific knowledge, skills, and dispositions necessary to prepare preservice teachers to be successful in teaching diverse student populations, Report #11; and (2) assessing candidates for new teacher education faculty members as to the knowledge, skills, and dispositions they will need to teach preservice teachers to work successfully with diverse student populations, Report #11.

Research Council Commentary: *Research does support steps to assure that teacher education faculty are knowledgeable about the subject matter to be taught, how diverse students both struggle with the subject matter and come to master it, and how it may be taught in a way that is responsive to cultural and other differences among students. As mentioned on page 14 of the present report, the deans of schools of education in the University system have launched*

*an initiative to address this and related issues, and both training for current faculty and selection of new faculty should be addressed through the initiative.*

- Recommendations from Reports: Expand educational programs to meet teacher shortages. Specific measures include (1) providing incentives to recruit students into teaching programs and then place them in high need schools and teaching areas, Report #11; and (2) expanding teacher training programs for Behaviorally and Emotionally Disabled students in order to increase pool of qualified B/ED teachers, Report #1.

Research Council Commentary: *Research shows very clearly that teacher quality is one of the main variables affecting students' learning, and that highly qualified and experienced teachers are inequitably distributed. North Carolina is indeed facing serious teacher shortages in many parts of the state and in many specialties, including B/ED teachers. Shortages of qualified teachers are likely to hit minority and economically disadvantaged students particularly hard. In these broad senses, research does support these recommendations (see pages 10 – 11).*

Recommendations from Reports:

- Help teachers and administrators gain a deeper awareness of the multiple forms intelligence can take and of diverse ways of teaching, Report #2.
- Ensure that classroom teachers acquire the knowledge, skills, and dispositions needed to be successful in teaching a diverse population of students, Report #11.
- Enable teachers to distinguish between behaviors and academic ability. (i.e. teacher pleasers are not always gifted and disruptive behavior can be linked to boredom/mismatched instructional approaches), Report #2
- Provide training for professional staff on cultural differences in behavior, Report #1

Research Council Commentary:

*Research on professional development for teachers emphasizes the importance of focusing on the specific subject matter knowledge in the prescribed curriculum, on how diverse students struggle with and learn the subject matter, and how it can be taught effectively (see pages 10 – 13). Attention to cultural responsiveness in teaching should be linked to the subject matter and how diverse students learn it. One of our advisors on this report issued a specific warning about ways that Gardner's work on multiple intelligences is often misunderstood and misused. While it may be useful to broaden teachers' appreciation for different kinds of ability, it is very important to avoid the implication that minority students lack the forms of intelligence necessary to do excellent academic work.*

- Recommendation from Report: Build a credible body of knowledge about minority cultures that can be used to prepare professionals, especially teachers, to more comfortably exchange or interact across ethnic/cultural lines through a study commissioned by the state to examine and profile the history of organized education for American Indians and African Americans in North Carolina, Report #11.

Research Council Commentary: *Research cannot cast much light on this recommendation. The results of the recommended study might be reviewed in light of other research when it is completed.*

- Recommendation from Report: The state should provide the substantial time that classroom teachers need to update their skills and gain new skills in working with diverse populations by requiring that veteran classroom teachers accept paid 11-month contracts once during every four-year period, Report #11

Research Council Commentary: *Research does indicate that substantial time is needed for professional development, but does not tell us whether this specific arrangement is warranted or effective.*

## DISTRICT-LEVEL ACTIONS

### III. Accountability

- Recommendation from Report: Develop and train local task forces that will help develop and monitor local plans for closing the gap. The Department of Public Instruction estimates the cost for state-wide implementation at \$2 million for year one, \$1.6 million for subsequent years for a total of \$8.4 million for five years, Report #4

Research Council Commentary: *As indicated in the text of this report, such local task forces might well serve as “local equity catalysts” analogous to those which played key roles in “equity-driven, achievement-focused school districts” in Texas. In this sense, the research we have reviewed supports this recommendation. Research cannot help with the question of whether the indicated level of expenditures is warranted.*

Additional recommendations concerning accountability are discussed under state-level policy actions, including a recommendation on district monitoring of the academic progress of minority and at-risk students. For a treatment of the research on accountability at the district level, see pages 15 – 17.

### IV. Capacity

**Sound Footing:** The reports under review offered no recommendations on this topic, but research does support pre-K programs, reduced class size in the early grades, and more intensive efforts to teach all children to read by third grade. These topics are addressed on pages 7–10 and 18–19.

**Instructional Coherence:** Again, there are no recommendations to review here, but research does show that instructional coherence promotes higher levels of student learning. Among the features of instructional coherence is a common instructional approach. Evidence on the question of whether minority students require special instructional approaches to help them succeed in school is discussed on pages 19 – 21.

**Teaching and Instructional Leadership:** See “Professional Development for Teachers and School Administrators” for recommendations related to this topic.

**Equal Opportunities to Learn**



**Dropout Prevention:** No recommendations on dropout prevention were included in the set of reports under review, but North Carolina's dropout rate is a very serious problem. Minority and economically disadvantaged students drop out at disproportionately high rates. Even if test score gaps are eliminated for students who stay in school, unless the dropout rate is reduced sharply, a major gap will persist between life chances for white and well to do children on the one hand and minority and economically disadvantaged children on the other. For a discussion of research on the dropout problem and possible remedies for it, see pages 23-24. The SREB recently reported to the Joint Legislative Education Oversight Committee on this topic. The report included a number of recommendations that seem thoughtful. We have not been asked to comment on them in this report, but we would note that there is strong research support for the proposition that the transition from middle school into high school is a danger point and needs closer attention. We are also aware that the proposal to raise the age of compulsory education to 18 has aroused considerable interest, but we have not yet been able to find research on the effects of this action.

**Reduction of Suspensions and Expulsions:** No recommendations on ways to reduce suspensions and expulsions were included in the reports under review, but time out of school inevitably undermines learning, and minority students – particularly African-American males – are suspended in numbers disproportionate to their representation in the school age population. For a discussion of research on suspensions and expulsions, ways to reduce them, and educational services during suspension or expulsion, see pages 24-25.

#### Special Education Assignments

##### Recommendations from Reports:

- Reduce and eliminate unnecessary referrals into special education by changing referral processes and interactions between staff. Specific measures include (1) providing greater collaboration between special education and general education by reorganization such as using special educators as prevention specialists and intervention specialists; (2) making sure the child's culture is reflected in the assessment instruments; (3) involving professionals from the child's culture or background in the assessment and identification process; (4) utilizing student support teams in a proactive manner that reduces referrals to special education; and (5) ensuring that a parent, guardian, or child advocate is involved in the decision of to identify a student as needing special education, Report #1.

- Provide a Stronger Focus on Early Intervention and Prevention Services.

Develop service delivery structures and procedures to improve coordination between special educators and related services providers and to provide safeguards so that African American students get appropriate mental health and other related services. Report #1

Research Council Commentary: Research related to these issues is summarized on pages 25-26. It generally supports the recommendations above. The research on ways to eliminate unnecessary referrals and ensure effective treatment for students who are appropriately referred should be incorporated into the technical assistance pilot we have proposed.

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#### Students with Limited English Proficiency

- Recommendations from Reports: Provide needed resources on a per pupil basis for students with limited English proficiency. The costs are estimated at a range of \$500, \$750 and \$1000 per child, Report #5.

Research Council Commentary: At present, the state distributes to local districts approximately \$23 million in supplemental funding for ESL students. The funds are not allocated on a per-student basis, but this would come to approximately \$442 per student. As just noted, the Five Year Budget projected additional funding at three levels: \$550, \$750, and \$1,000 per student. Adding \$550 per student would bring the per-student funding to almost \$1,000. Research does not provide an adequate basis for computing the extra costs of educating English language learners, but surveys of educators may offer a rough indication of the costs. Working separately, The NC Justice and Community Center and North Carolina Teachers of English as a Second Language both surveyed superintendents across the state to estimate the extra costs of educating an ESL student, and the average quoted by the superintendents in each survey was \$1,000. An estimate developed in Arizona was similar – about \$1300 per student. Thus, the \$1,000 figure seems plausible, and current funding provided specifically for ESL students falls approximately \$550 short of this estimate. We would note, however, that state and federal funds now provided via a variety of different funding streams – such as federal Title I, low-wealth supplements, or at-risk funds -- could be used to offset these extra costs. Without detailed study of needs and costs to districts across the state, we cannot know what additional funds may be required to meet the needs of English language learners. If the district-level technical assistance pilot we propose is funded, this will support further analysis of this issue in selected districts.

- Recommendations from Report: Provide training through “Training of Trainers” Institutes. Cost for such institutes for LEP training: developing a 10-hour online training module and conducting 1-2 “Training of Trainers” Institutes each year. The five year costs range from the first year at \$265K to \$320K in year 5. The program costs are based on each LEA sending five members and each charter school sending three members to a five-day training institute. The sessions would be held in six locations across the state. Estimated cost is \$122,800 for the first year. Increases in expenses are built into subsequent years. For five years, the total cost for the trainer program is \$651,342.00. Report #5

Research Council Commentary: Research does support the need for training in ESL for principals, regular classroom teachers, and ESL specialists, and research points to the particular kinds of skills and knowledge that such professional development should focus on, but it cannot tell us how effective the particular training of trainers institutes proposed here are likely to be in delivering such professional development. A new evaluation study would be necessary for that purpose. Training of trainers approaches offer the advantage of economy – they are certainly less expensive than direct delivery of professional development to all of the teachers intended as the audience for these services – but also entail the disadvantage that they are highly dependent on how those who are trained as trainers actually perform in that capacity. In other words, the two-step process involved in the implementation of such models offers more opportunities for slips between the cup and the lip, but if funds are severely limited, they may represent a plausible option. See page 26 for a discussion of this research.

- Recommendation from Report: Continue to train teachers, administrators, and support personnel in English as Second Language (ESL) methodologies and

pedagogy through 60 – 90 minute programs delivered via statewide satellite network, video tape loan programs, and web-based video streaming. Report #5

Research Council Commentary: *Research on effective professional development underscores the importance of active learning opportunities for teachers (see page 11). When professional development is delivered through a non-interactive medium – video, satellite program or otherwise – it is especially critical that teachers be provided with a chance to interact with each other around their understanding of course content and its classroom application. Lack of teacher-to-teacher interaction may prevent these forms of professional development from producing any substantive change in teacher practice and expertise.*

Recommendations from Reports:

- Provide funding to LEAS to hire translators to work with Spanish-speaking parents and those school personnel whose jobs require regular contact with those parents. In making its estimates, DPI also identified that there are significant numbers of speakers of Asian languages in some LEAs. Estimated costs for each of five years beginning in 2001-2002 were \$5.3 to \$6.8 million, Report #5
- Translate State-level forms and basic school information that will be made available to parents or to the general public into Spanish and include them on the DPI web site in English and Spanish. DPI estimates a yearly cost of between \$10,000 and \$11,000, Report #5.

Research Council Commentary: *There is abundant research to support the propositions that parents play key roles in setting expectations for and supporting their children's learning, and that active efforts by teachers and principals to communicate with parents do increase parents' involvement in their children's learning (see page 32). Translations of forms and much other information could be done most efficiently at the state level, and the costs are modest. If the DPI's estimates are correct, the costs of translators or interpreters would be significant. Whether this particular intervention to improve parent-school communication would then have an impact on achievement gaps is not clear from the research we were able to examine.*

Equity in Grouping and Tracking

Recommendations from Reports:

- Use multiple and diverse assessments and processes that tap individual skills in different ways and that will more rapidly identify and place minority students in AIG programs. Report #2
- Insure that all students take Algebra 1 before they enter ninth grade. Report #2
- Eliminate tracking and increase rigor in all course offerings. Report #2
- Structure course offerings to make it easier to take advanced courses, such as by providing open-enrollment opportunities to participate in advanced courses; eliminating/reducing conflicts in scheduling of courses; using technology to provide access to and to support success in advanced courses;

making adjustments to maintain appropriate balance and eliminate potential conflicts in rigorous courses and extracurricular activities, Report #2.

- Expand statewide incentives designed to increase the number of minority and low-income students taking AP exams or other rewards for high academic performance in challenging courses, Report #2.
- Prepare and support minority students in advanced courses and programs from K-12 with instructional approaches and strategies such as clustering students by race to provide peer support, pacesetter classes, AVID or other formal program structures, Reports #2, #11.

*Research Council Commentary:* Research shows that the state's minority students are underrepresented in Academically and Intellectually Gifted programs at the elementary school level as well as in Honors, Advanced Placement, and International Baccalaureate courses at the high school level. The recommendations above generally point in the right direction, but it is not clear from research that all students should take Algebra 1 before they enter ninth grade. Research clearly does support the notion of increasing rigor in all courses – indeed, it indicates not only that this would raise achievement levels but also that it could do so without raising dropout rates. However, the literature on dropout suggests that the complete elimination of vocationally-oriented courses with a clear link to jobs in the near future could discourage some students from remaining in school. Incentives and support for minority and at-risk students to take advanced courses should help correct their under-representation. We know of no research to support clustering by race, and such a practice would appear to conflict with the literature on the negative effects of segregation and with the law. For a discussion of the research on these issues, see pages 29-30.

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Help for Students Who Still Fall Behind: The reports under review included no recommendations on tutoring, after school programs, summer programs, or intensive diagnosis and follow-up for students who fall behind. Yet there is very strong research support for such steps – see pages 30-32.

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#### Increase Parent Involvement

- Recommendation from Reports: Provide a state-level complaints hotline and investigations into complaints of disparate treatment. Cost is estimated at \$397,000 for first year (salaries for 5 full-time bi-lingual employees comprise \$366 thousand), Report #6.

*Research Council Commentary:* We were unable to identify research on this intervention, which would represent an addition to local harassment and grievance procedures and procedures already in place for special education and federal complaints regarding disparate treatment.

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- Recommendation from Reports: Initiate a statewide professionally-designed public information campaign targeted at parents (especially those with underachieving students) and communities to raise awareness of attitudes and practices that are critical to raising student achievement. The campaign could draw attention to the importance of children thinking of themselves as academic achievers, encouraging cooperative relationships between home and school, providing the message of the harmful effects of too much TV time, and encouraging mentoring programs, Report #11.

Research Council Commentary: Research on this topic is summarized on page 33. Given the expense entailed in a media campaign of the nature and scale required to affect parent and student behavior and the availability of more direct, less expensive channels of communication, we believe the wisest course at present would be to treat a public information campaign as one reasonably promising action among the repertoire of actions that may be taken by local districts to improve performance on the projected new, gap-oriented features of the ABCs accountability system.

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- Recommendation from Reports: Require LEAs to collect from each school (1) annual action plan for improving connections with parents, especially those not usually involved with the school, (2) parent involvement records focused on parents involved with their own child at school, (3) voluntary home visits by teachers and administrators, Report #11.

Research Council Commentary: As previously noted, research does support the proposition that parent involvement contributes greatly to student achievement, but we know of no research on the effects of such reporting requirement (see page 32).

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Desegregate Schools: None of the reports under review included recommendations for school desegregation. Yet research clearly shows that African-American students learn better in desegregated schools and North Carolina's schools are actually re-segregating at a rapid clip. This issue needs urgent attention from policy makers.