MEMORANDUM

To:       Members of the Board of Education
From:     Jerry D. Weast, Superintendent of Schools
Subject:  Early Elementary School Performance Gains and the Impact of Academic Reforms in the Montgomery County Public Schools

The first class of students to receive the benefits of three years of major reforms in early elementary school education in the Montgomery County Public Schools (MCPS) has reached Grade 2 this year, and those children most at risk of academic failure are performing, instead, at or above the national median\(^1\) in key subjects on an important test of basic skills, with some scores among the highest performing students in the nation.

Three studies by research teams from the Office of Shared Accountability\(^2\) detail consistent and, in some cases, extraordinary gains by African American students, Hispanic students, poor students, special education students, and those learning English as a second language. The studies show a strong relationship between foundational reading skills\(^3\) when entering kindergarten, continuous enrollment in the same school, and reaching the national average in second grade. The link to continuous enrollment in the same school was most obvious among at-risk students who had full-day kindergarten, stayed in the same school, and scored nearly on par, at least in mathematics computations, with students in less at-risk communities.

The results compared nationally are based on student performance in Grade 2 on the 2003 TerraNova Comprehensive Tests of Basic Skills (CTBS), taken this past March by more than

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1. The median is the middle score of a group, meaning that half of the scores are above it and half are below. Thus, the median national percentile for the national reference group is 50, and students who scored above this point outperformed 50 percent of students in the national reference group.


3. The four foundational reading skills measured in 2000-2001 included hearing and recording sounds, letter identification, concepts about print, and word recognition. These were expanded to six skills in 2001-2002 by adding oral language (verbal memory) and phonemic awareness (recognizing discreet sounds and words).
10,000 children in Montgomery County, the largest class of second graders in the school system’s history. The CTBS provides an important reflection of student achievement as a nationally normed (1996) assessment. In addition, the CTBS reading subtest is correlated with the school system’s own Primary Reading Assessment, which is used in kindergarten through Grade 2. These and other assessment tools have enabled the school system to continuously improve its curriculum alignment from kindergarten through Grade 12 and expand opportunities for more rigorous coursework by students at all grade levels. For example, the school system is now widely using various assessments, including the PSAT, to identify higher potential among students. Such efforts are very important. One previous school system report identified a link between performing on grade level by Grade 3 as a potential precursor for success in Honors and Advanced Placement courses in high school, a finding that gave added emphasis to student attainment of early literacy skills in pre-school and kindergarten and reading independently by the end of Grade 2.

Interestingly, the findings of the CTBS studies did not show any academic benefit for these students from the pre-school programs that were available four years ago before the onset of the academic reforms in Montgomery County. This year’s second graders entered kindergarten in the 2000-2001 school year amid a flurry of reforms. The improvements introduced a completely revised kindergarten curriculum, a strong emphasis on reading and mathematics, professional teacher development, and diagnostic assessments systemwide, plus both sharply reduced class sizes (15:1 in kindergarten and 17:1 in first and second grades) and an instructionally based full-day kindergarten in 17 of the most highly impacted schools. (Since 2000-2001, full-day kindergarten and related class size changes have been expanded to 56 schools, just about half of the county’s 123 elementary schools, along with improved assessments, diagnostic tools, and a new report card for kindergarten, among other improvements.)

The reforms appear to have had a significant effect, especially for the initial target group of the 17 most highly impacted schools. As a group, the 17 schools scored at and above the 50th national median percentile in three of the five subject areas. In fact, nearly all of the 17 schools scored at or above the national median (50th percentile) in mathematics computation, reaching the 76th percentile in this subject as a group.

Their much improved performance in mathematics computation helped propel the school system’s overall results in that subject to the 83rd percentile, the highest ever, and the first time any result on the CTBS in Montgomery County has surpassed the 80th percentile. All other subjects maintained the previous year’s systemwide marks, ranging from the 64th to the 77th percentile.
percentile, for the third consecutive year. This is an important accomplishment given that the demographic make-up of this year’s second grade students tested continued to grow in size and reflected the substantial growth of academically at-risk students, including a 32-percent increase in English language learners tested in Grade 2 since last year alone.9

The new national test results underscore the remarkable work by elementary school teachers and principals, and other school-based and central office staff who have focused on significant instructional reform initiatives over the past three years. I am particularly impressed that student achievement has remained consistently high, with areas of marked improvement, when schools are gaining new students every day and experiencing greater demographic complexity than at any time in our history.

In summary, systemwide data showed that compared nationally:

- Grade 2 students scored at the 83rd percentile in mathematics computation systemwide on the CTBS, the highest ever, reflecting a 15-point gain since 2001 and the first time that any systemwide score in Grade 2 has surpassed the 80th percentile. Students maintained results in reading, language, mathematics, and language mechanics, scoring at or above the 64th percentile and as high as the 77th percentile for the third consecutive year. (See Stevenson, 2003.)

- Significant gains were made by African American and Hispanic students in Grade 2 on the CTBS, narrowing the achievement gap with Asian American and White classmates in reading, language mechanics, and mathematics computation. (See Stevenson, 2003.)

  - Hispanic students increased in four of the five subject areas on the CTBS, gaining 19 percentile points in mathematics computation (68th percentile), 10 percentile points in language mechanics (65th percentile), 9 percentile points in mathematics (52nd percentile), and 6 percentile points in reading (40th percentile), while maintaining performance in language (43rd percentile). (See Stevenson, 2003.)

  - African American students increased in three of the five areas, gaining 19 points in mathematics computation (68th percentile), 10 percentile points in language mechanics (65th percentile) and 7 percentile points in reading (47th percentile), while maintaining performance in language and mathematics (both at the 43rd percentile). (See Stevenson, 2003.)

  - Students participating in FARMS and ESOL in Grade 2 made gains in nearly every subject on the CTBS, including 19 percentile points by ESOL students in mathematics computation (68th percentile), the highest percentile rank achieved by ESOL students as a group. Students in special education also gained in mathematics computation, increasing

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9 There were 10,060 students tested, an overall gain of 2 percent compared to last year, including a 4-percent gain in African American students (21 percent overall) and a 9-percent gain in Hispanic students (19 percent overall). Participation in FARMS increased by 2 percent to 27 percent overall. Participation in ESOL increased to 1,110 students, more than 10 percent of the overall tested group, double the size since 2001.
from the 49th to the 58th percentile, while maintaining scores in the other areas. (See Stevenson, 2003.)

These results reflect the continued progress of students who have been part of ongoing studies of more than 16,000 children emerging from the first two years of the early elementary school reforms, first in 2000-2001 and then in 2001-2002. The next installment of the project will be made this fall, with a report on the kindergarten students of 2002-2003.

National comparative findings for the 17 highest poverty schools:

Of particular interest is the progress of Grade 2 students in the 17 highest poverty schools that received the package of early elementary school reforms in the 2000-2001 school year, including expanded full-day kindergarten programs and class size reductions.

- The performance of Grade 2 in the 17 schools increased substantially as a group in four of the five subject areas—gaining 18 percentile points in mathematics computation alone, with nearly all schools at or above the national median in mathematics computation. (See Stevenson, 2003.)

- More than one-third of the Grade 2 students in the 17 schools who entered kindergarten with minimal foundational skills—hearing and recording sounds, letter identification, concepts about print, and word recognition—were able to meet or exceed the 50th median percentile in reading and language in Grade 2. By comparison, exceeding the 50th percentile occurred for 75 percent of students who entered with some foundational skills and 93 percent of students who entered with all foundational skills. (See Alban, et al, 2003.)

- Students who entered kindergarten with minimal or some foundational skills are more likely to be successful in Grade 2 on the CTBS in reading and language if they remain continuously enrolled in the same school. Those who enter with all four foundational skills are likely to be successful on the CTBS regardless of their enrollment pattern. (See Alban, et al, 2003.)

- Students in Grade 2 from all racial and ethnic groups and those who participate in FARMS and/or ESOL services and who enter kindergarten with minimal or some foundational skills are more likely to perform at or above the national median on the CTBS in reading if they were enrolled in a full-day kindergarten and stayed enrolled continuously in the same school through the second grade. (See Alban, et al, 2003.)

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Detailed finding regarding the impact of full-day kindergarten in the 17 schools:

- Students in Grade 2 who participated in the original 17 schools that received the expanded full-day kindergarten program and who stayed continuously enrolled through the second grade scored at the 78th national percentile as a group in mathematics computation, gaining near-parity with a comparison group of students in non-high poverty schools with half-day kindergarten who scored at the 86th national percentile. (Other, smaller narrowing of differences between high and low performing schools occurred in other subjects, as well.) (See Larson, 2003.)

Implications for Continued Local and National Improvement

The new findings are important, not only for our own efforts in Montgomery County but also for demonstrating for others nationally that quality instruction and structural improvements in the early years of elementary school can make a sustained difference in academic achievement for all children, especially those who are challenged educationally because of poverty, language, or mobility. Such an emphasis is found in the school system’s Early Success Performance Plan, which serves as the basis for the coordination of pre-kindergarten and early elementary programs and services. Together with an alignment of instructional programs through Grade 12, the plan is focused on improving student achievement in reading, writing, mathematics, and language. The Early Success Performance Plan is built around five major components:

- Focused and challenging curriculum for reading, writing, and mathematics
- Ongoing assessment of student progress (using three levels of measurement: diagnostic, screening, and regular classroom-based)
- Expanded instructional time
- Intensive, targeted, and sustained professional development for teachers in not only the programs of studies for students in kindergarten through Grade 2 but also the effective assessment of student skills
- Meaningful family involvement and community collaboration, including more descriptive report cards that provide parents with detailed information about child development and their child’s progress

Several recent national studies strongly point to the necessity of a sustained early focus on reading and mathematics as the foundation for long-term academic success. This has been the centerpiece of the reforms under way in Montgomery County, especially given the rapid increase in the percentage of students likely to be at risk academically because of poverty, language, and

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12 For more information on the school system’s assessment program in kindergarten through Grade 2 and its correlation for national comparisons, see Alban, et al. (2003).

mobility. We are not alone in this demographic predicament. Studies of the implications of national population shifts point consistently to the growing impact of this change on public education across America.\textsuperscript{14}

The new national comparative data from the 2003 CTBS results reveal important areas for further improvements, including the need to help at-risk students acquire foundational reading skills before kindergarten in quality pre-school programs\textsuperscript{15} and maintain enrollment in the same school from kindergarten through second grade. The school system is working hard to overcome deficiencies in reading skills through the instructional program in kindergarten through Grade 2, but it is clear that successful learning depends heavily on the skills that children bring to kindergarten from their experiences at home or in pre-kindergarten programs, such as Head Start. At the same time, the continuing research in Montgomery County provides an important practical element to the ongoing national debate about the success of pre-kindergarten programs on the academic and social well being of impoverished and non-English speaking children.

Dr. Michael Ben-Avie of the Yale Child Study Center said in a recent letter that the efforts of our school system “merit national attention” because, among other things, the school system “is developing a high quality, school-based approach to promoting children’s emerging literacy.” Dr. Ben-Avie, who reviewed two of the studies reported here, said that a key finding “is that the most important predictor [of student success on the CTBS in Grade 2] is that student’s own performance in kindergarten.” He called attention to the “importance of an alignment of the curriculum, instruction, and assessment over time—from pre-kindergarten through twelfth grade.” He also concluded that “the research findings on the benefit of students’ continuous enrollment in the same school confirmed the critical need for school districts to address the impact of the students’ mobility rate. MCPS does so by engaging in systemic reform at the school district level.”

Currently, the school system is implementing a major federal grant to establish Early Reading First Centers at five elementary schools to saturate children with oral language and early literacy opportunities that can be extended into homes, day care centers, and the classroom. At the same time, the school system is participating in the submission of three major grants for studies about the efficacy of pre-kindergarten programs. The studies would include an evaluation of curricula designed to improve school readiness; another would determine whether highly promising, evidence-based curricula designed for typically developing children also can produce significant gains for children with an array of special needs; and the third study would document the effects of developmental interventions on school readiness, preschool curriculum on school readiness, early interventions on neurobiological functioning, and advance the methodology and theory about school readiness, including innovative measures of children’s learning.

The nationally renowned team of Dr. Craig T. Ramey and Dr. Sharon L. Ramey of the Georgetown University Center is leading these research efforts on Health and Education, in collaboration with several co-investigators. Drs. Craig and Sharon Ramey said in a recent letter


that the school system’s “plan for success builds soundly on research evidence that demonstrates that providing high quality, educationally enriched programs prior to kindergarten have the potential to raise children’s language, early literacy, and math skills.” Nonetheless, they cautioned that such efforts alone, including full-day kindergarten and other academic programs during the school day, cannot “close the achievement gap.” They said other “keys to higher achievement” need to include “learning opportunities beyond the school day” to support language development, literacy, mathematics, and important health and social needs of children.

**Conclusion**

The program improvements affecting Grade 2, including better use of instructional time, more attention to individual students, and greater consistency and continuity from grade to grade, appear to be paying off in measurable ways. More progress needs to be made, particularly in raising the overall performance of the school system and narrowing the gaps among sub-groups of students. The 2003 CTBS results provide important insights for this continuous improvement. Indeed, the results may provide a barometer by which to measure the immediate and long-term gains of second grade students even as the state continues to develop and implement the new Maryland School Assessment (MSA) required for compliance with the *No Child Left Behind Act*. The continuing benefit of the CTBS and its applicability to providing insight about the progress of our students are centered on the availability of important longitudinal data over the past three years. The difficulty of implementing two different assessment programs in the same year nonetheless underscores the value of maintaining a measurement tool that provides a national benchmark on which to examine the continuing progress of our schools.

At the same time, Montgomery County has a significant interest in the provision of quality pre-kindergarten and extended learning programs after the school day, on weekends, and during the summer, especially for those children experiencing the impact of poverty, mobility, or learning English as a second language. Such quality pre-kindergarten programs, in particular, need to provide more directed and specific instructional time, devoted to the acquisition of foundational reading and mathematics skills. Too much is at stake for generations of young children for anyone to ignore what is now plain to see. The obvious research conclusions point to the need for more pre-kindergarten and extended learning programs that provide not only quality of instruction but also are well connected to kindergarten and first and second grade and offer a congruent introduction to what children will need to know and be able to do in elementary school and beyond.

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Attachments

Copy to:
- Executive Staff
- Principals