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The NC CAP "Roadmap of Need" Supports the Importance of the Read to Achieve Act

By Malbert Smith III, Ph.D., Jason Turner and Steve Lattanzio

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The North Carolina Center for Afterschool Programs (NC CAP) recently released their 2013 "Roadmap of Need" report detailing each North Carolina county's ranking by multiple essential indicators. The report ranks North Carolina counties on the basis of a wide range of variables—from economic variables to health and wellness indicators to educational achievement. The report offers a compelling look at North Carolina, county by county, and provides an excellent starting point for considering those counties with the most need. For a complete listing of North Carolina counties and their various ranks, you can access the full report at www.nccap.net/media/pages/RoadmapofNeed.pdf.

In addition to the raw county data, we wished to go a step further and consider educational attainment across North Carolina districts. With the acceptance, adoption and implementation of the Common Core State Standards (CCSS), there is recognition that one of the major goals of public education is to ensure that every student graduates college and career ready. The best proxy currently available in North Carolina for this goal is performance on the ACT (American College Testing), which is one of the educational variables in the NC CAP report.

In an attempt to uncover the variables within this data set that were most predictive of ACT performance, we computed the correlation coefficient of each of the 19 variables with ACT performance[1]. While one should never equate correlational data with causality, it is often helpful to look at correlational data when looking for trends and associations.

The highest single correlation within the data set for ACT performance was third grade reading performance (.69). This simple correlation supports the state's recent emphasis, through the Read to Achieve legislation, on having every child reading on grade level by the end of third grade. All of the correlations across the 19 variables are listed in Table 1, descending in order of magnitude.

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[1] The correlations in this paper are Spearman's rank correlations, a measure of statistical dependence that considers only the rank ordering of values in order to avoid artifacts due to nonlinear relationships between variables.

One can also see that many of the variables associated with poverty are highly correlated with ACT performance. Interestingly, grade three reading is more highly correlated with ACT performance than Algebra 1.

Again, it is important to not draw causal inferences from correlational data. However, it is difficult to argue that a focus upon early literacy is not supported or well advised. The Roadmap also illustrates that there is quite a disparity in current third grade reading level. Table 2, on the following page, lists each county's third grade reading proficiency from the lowest to the highest. In Washington County, only 46 percent of the third grade students are reading at or above grade level, whereas in Camden County 88 percent of the students are at or above grade level. As one can see in Table 2, roughly half of North Carolina districts have 32 percent or more of their third graders not reading on grade level.

While it is instructive to look at the percentage of third grade students reading on grade level, it is also helpful to look at the practical consequences of this reality in terms of what grade level students are able to read. To concretize the impact of this disparity, we selected a well-known children's book, "Charlotte's Web" by E.B. White. Often when educators just cite the percentage of students above or below a certain score, parents and policy makers do not have a tangible, concrete reference to what this means. This disparity in reading at the third grade reading level means that 54 percent of third graders in Washington County will struggle with comprehending "Charlotte's Web", whereas only 12 percent of third graders in Camden County will struggle with the same text[2].

Given such wide disparity in reading proficiency among third graders in North Carolina—and the fact that the third grade reading level correlates so highly with ACT performance—the Read to Achieve Act

TABLE 1: NC CAP's "Roadmap of Need"
Variables and the ACT

Variables	Correlation
Grade 3 Reading	.69
Bachelor's Degree	.68
Child Poverty	.65
Single Parent	.64
AMO	.62
Suspension	.61
Median Income	.58
Unemployment	.56
Teen Pregnancy	.53
Algebra I	.53
Graduation Rate	.52
Physicians	.34
Child Food Insecurity	.31
Child Fatality	.27
Detention	.24
Delinquency	.12
Child Obesity	.01
Child Abuse/Neglect	-.12
DSS Custody	-.14

[2] To anchor these percentages in concrete terms, we used the common reading metric, the Lexile® measure. North Carolina's measure of reading proficiency for third grade means that a student is reading between 665L- 960L. By way of comparison, Charlotte's Web has a Lexile measure of 680L. By referencing the percentage of proficient students with each North Carolina school district, we can easily obtain the percentage presumably able to read and comprehend this basic and common text.

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represents a vitally important marker in our journey to ensure that every student graduates college and career ready. The importance of this third grade milestone is punctuated by the fact that those who fail to achieve reading proficiency are slated for a wide variety of intervention measures designed to get them reading on grade level.

Table 2: 2011-2012 Percentage of Scores at or Above Grade Level on Third Grade North Carolina Reading End Of Grade

NC School District	Percentage of Scores	NC School District	Percentage of Scores
Washington County	46%	Pamlico County	68%
Bertie County	47%	Stanly County	69%
Halifax County	49%	Avery County	69%
Greene County	50%	Mecklenburg County	69%
Edgecombe County	50%	Pender County	69%
Hertford County	51%	Ashe County	70%
Northampton County	52%	Cherokee County	70%
Warren County	55%	Graham County	70%
Montgomery County	55%	Sampson County	70%
Anson County	55%	Mitchell County	70%
Chowan County	56%	Beaufort County	70%
Harnett County	56%	Cabarrus County	70%
Hoke County	57%	Catawba County	70%
Robeson County	57%	Onslow County	71%
Bladen County	57%	Cumberland County	71%
Columbus County	57%	Macon County	72%
Durham County	58%	Yadkin County	72%
Jones County	58%	Rutherford County	72%
Martin County	59%	Brunswick County	73%
Pasquotank County	59%	Hyde County	73%
Richmond County	60%	Moore County	73%
Granville County	60%	Johnston County	73%
Rowan County	61%	Burke County	73%
Pitt County	61%	Craven County	74%
Vance County	61%	Watauga County	74%
Lenoir County	61%	Person County	75%
Duplin County	61%	Caldwell County	75%
Randolph County	62%	Davie County	75%
Alamance County	62%	Dare County	75%
Wayne County	62%	Henderson County	75%
Forsyth County	63%	McDowell County	75%
Nash County	63%	New Hanover County	75%
Rockingham County	63%	Iredell County	75%
Caswell County	64%	Wake County	75%
Jackson County	64%	Buncombe County	75%
Guilford County	64%	Yancey County	76%
Wilkes County	65%	Cleveland County	76%
Gaston County	65%	Currituck County	77%
Tyrrell County	65%	Surry County	77%
Perquimans County	65%	Alexander County	78%
Wilson County	65%	Lincoln County	78%
Lee County	66%	Union County	78%
Chatham County	66%	Madison County	78%
Franklin County	66%	Haywood County	78%
Stokes County	67%	Carteret County	79%
Davidson County	67%	Orange County	79%
Scotland County	67%	Alleghany County	79%
Swain County	67%	Polk County	83%
Transylvania County	68%	Gates County	86%
Clay County	68%	Camden County	88%

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While there has been much attention on the consequences of failing to reach third grade reading

proficiency, such as summer schools or retention, there has been less attention paid to the role of early

and periodic formative assessment. By extending our assessment batteries to the start of kindergarten

we do not have to wait until the end of third grade to identify reading difficulties and intervene

appropriately. This extension of these assessments is important for a number of reasons. First, as we

have known for years, there are large and significant differences in the precursor academic skills of our

students before they even arrive at school. We know that our free- and reduced- lunch students come

with not only a poverty of income, but a poverty of vocabulary, academic preparedness and literacy

skills. Secondly, when we examine longitudinal growth in reading, we see that a tremendous amount

of growth takes place before grade three. In fact, as you can see from Figure 1, as much as 50 percent of

overall growth may occur before grade three.

Figure 1: Median Postsecondary Text Measures
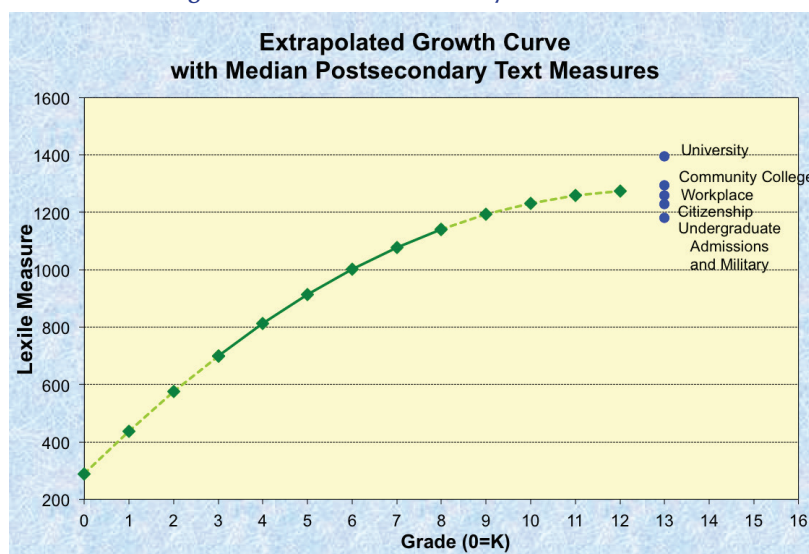
A number of insights can be gleaned from this picture. First and foremost is the remarkable and

disproportionate amount of reading growth that takes place between early kindergarten and third

grade. If the expectation, as established by the CCSS, is that students are to be reading at 1300L (the

mid-point of college and career readiness) by the time they graduate high school, then approximately

50 to 60 percent of reading growth has occurred by the end of third grade. While the CCSS at least

acknowledges the formative importance of the kindergarten to second grade years, the lack of

quantitative guidance is unfortunate. This lack of attention is an oversight that neglects almost

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half of the student's span of reading growth. New parents do not begin their pediatrician visits in their child's adolescence when much of the child's physical growth has already occurred; nor should we begin to assess reading growth at such a late date in a child's reading development.

While the Read to Achieve legislation lays a solid foundation by focusing on third grade reading proficiency and extending formative and periodic assessments down to kindergarten, the ultimate goal of putting students on the path to college and career readiness will best be served by four interventions: early pre-kindergarten education, addressing summer learning loss, the smart use of digital personalized learning platforms and the implementation of the CCSS. By enacting Read to Achieve, our policy makers have laid a strong foundation for achieving college and career readiness for all of our students. The goal of having all third grade students reading on grade level is a laudable goal. However, as we can see from Table 2, this is a lofty goal. Today, in roughly half of our districts, 32 to 54 percent of students are falling short of this goal. Unless we pay attention to, support and fund early education, efforts to curb summer learning loss at every grade, personalized learning platforms and the implementation of the CCSS, we shall find that this firm foundation will erode over the coming years.

ABOUT METAMETRICS®

MetaMetrics, founded in 1984, is an educational measurement and technology organization whose mission is to connect assessment with instruction. The company's distinctive frameworks for English and mathematics bring meaning to measurement and are used by millions to differentiate instruction, individualize practice and improve learning across all levels of education.

ABOUT THE AUTHORS

MALBERT SMITH III, PH.D., is President and Co-founder of MetaMetrics, where his vision for common metrics and differentiated instruction has shaped educational policy and practice throughout the United States and many countries across the world. As codeveloper of The Lexile® Framework for Reading and The Quantile® Framework for Mathematics, Dr. Smith's work has become a central component within instructional and assessment products of all major publishers. Dr. Smith serves on the boards of the National Summer Learning Association, the Public School Forum of North Carolina, the UNC School of Education Foundation, LEARN NC, North Carolina Virtual Public School and the advisory board of Capstone Digital. Dr. Smith is also a research professor at the University of North Carolina at Chapel Hill. Widely published, Dr. Smith speaks frequently on issues related to educational research, measurement and technology.

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STEVE LATTANZIO is a Research Engineer at MetaMetrics where he specializes in the development of new algorithms and data analysis. Steve has worked on algorithms that range from growth modeling and forecasting of student ability, to automatic essay scoring engines. Steve received his B.S.E. and M.Sc. in Civil and Environmental Engineering from Duke University where he performed research in the area of control theory and developed a passion for stochastic dynamic processes, optimization and machine learning which he has applied to his work at MetaMetrics.

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