

What Works for Third Grade Reading

NC Pathways to Grade-Level Reading Working Paper

High Quality Birth-to-Age Eight Early Care and Elementary Education: High Quality Birth-through-Age-Eight Environments with Regular Attendance

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I. Pathways Measures of Success

Percent of children birth-to-five attending licensed child care who are in 4- and 5-star centers and child care homes. Percent of children enrolled in kindergarten through third grade attending high quality schools.

There is a national debate about how to measure K-12 school quality. North Carolina is currently writing its required federal Every Student Succeeds Act (ESSA) Plan that must include a set of school quality measures.

II. Definitions

The following terms are referenced in this brief:

CEDARS (Common Education Data Analysis and Reporting System) is the North Carolina PreK-13 State Longitudinal Data System. The system includes a Unique Identifier (UID) for each student and each staff member, enabling data collection and use within and across classrooms, schools and districts to inform instruction, programs and finance.ⁱ

Chronic absence is defined as missing 10% or more of attendance in an early education program over the course of a single educational year.ⁱⁱ This measure is generally described in terms of public school attendance but is applied in this brief because Head Start programs are now required to track and address high levels of absence among enrolled children.ⁱⁱⁱ See the Pathways' brief on *Regular School Attendance*.

Comprehensive early childhood programs are those that deliver an integrated system of early education, health services and family supports designed to prepare children for kindergarten and school success.^{iv}

Early Care and Education (ECE) as used in this brief means a child care or a formal learning program for children ages birth through four designed to promote healthy development, school readiness and elementary school success. Early education programs can include Head Start, public and private family- and center-based child care and preschool, and public PreK programs.

Elementary education as used in this brief refers to public school, from kindergarten through the third grade.

Every Student Succeeds ACT (ESSA) requires states to include quality measures in the plans they must submit to the federal Department of Education. Ten states and the District of Columbia submitted by April 14, 2017. The most common indicator in plans submitted to date is chronic absence.^v The North Carolina draft plan was released on June 26, 2017.^{vi}

Family child care means a setting for children ages birth to five provided in a home. Licensed child care homes are regulated for basic health and safety by the State of North Carolina. Informal family care means nonparental care provided in unlicensed settings by extended family members, friends and neighbors. This has also been called kith and kin care, family, friend and neighbor care, home-based care, relative care, license-exempt, unregulated or unlicensed care.^{vii} Reviews of the research literature are made more difficult because of the various ways in which this type of care is described.^{viii}

Family engagement is defined as occurring when there is “an on-going, reciprocal, strengths-based partnership” between families and their children’s educational (or other) programs and activities.^{ix}

High quality in early education settings is “directly related to the quality of their staff, their understanding of child development, and their ability to translate that understanding into positive interactions, securely attached relationships, and age-appropriate learning opportunities with children.”^x For the preschool setting, high quality^{xi} is defined as meeting standards articulated and tracked by the National Institute for Early Education Research (NIEER). These standards include well-trained, well-compensated and well-supported teachers and school leaders, language-rich classroom environments, small group sizes, low staff-child ratios and low staff turnover rates.^{xii} In addition to maintaining compliance with the NIEER standards, North Carolina PreK classrooms must also attain a star rating of four or five on the state’s five-star rating system.

High quality in K-3 education includes the following core policy areas, as defined by the Education Commission of the States: basic requirements (such as full-day kindergarten, sufficient school hours and teacher-student ratio); school readiness and transitions; assessment, intervention and 3rd grade retention; instructional quality; family engagement; and social-emotional learning.^{xiii}

Implicit bias is “the bias in judgment and/or behavior that results from subtle cognitive processes (e.g., implicit attitudes and implicit stereotypes) that often operate at a level below conscious awareness and without intentional control,”^{xiv} as opposed to *explicit* bias which is a set of representing beliefs, attitudes and actions “endorsed” at a conscious level.^{xv} Implicit bias among educators has been identified directed at children as early as the preschool years.^{xvi}

North Carolina Kindergarten Entry Assessment (KEA) is this state’s “authentic observational assessment” of all entering kindergartners within the first 60 days of kindergarten.^{xvii} It assesses the status of individual students knowledge, skills and behavior across five domains: Approaches to learning; Cognitive development; Emotional and social development; Health and physical development; and Language development and communication.^{xviii} The NC KEA is aligned with the NC Foundations for Early Learning and Development and NC Common Core.^{xix} The KEA is not a diagnostic tool or a test to determine developmental delays.^{xx}

North Carolina school report cards are published for each school in each North Carolina district on an annual basis.^{xxi} For the past three years, schools have been rated A to F, as required by state legislation.^{xxii} To calculate the School Performance Score, a Growth Score (worth 20% of the total) and an Achievement Score (worth 80%) are combined. Points associated with each letter grade are: A: 85-100 points; B: 70-84 points; C: 55-69 points; D: 40-54 points; F: Less than 40 points. “Schools may be designated with an A+NG if after being assigned an “A” using the school performance grade calculations, the school does not demonstrate significant gaps between subgroups that exceeds the state gap on achievement/graduation rates.”^{xxiii}

North Carolina Smart Start is a population-level system of funding for early childhood programs and supports designed to advance young children’s healthy and on-target development, and school readiness, from birth to age four.^{xxiv} Established in 1993, Smart Start is a public-private partnership in which independent organizations across all 100 North Carolina counties, incorporated into 75 local partnerships, work to “advance a high-quality, comprehensive, accountable system of care and education for each child beginning with a healthy birth.”^{xxv}

NC PreK, established in 2001 as *More at Four*, is the North Carolina state-funded prekindergarten program “for high risk 4-year-old children, with risk defined as annual family income at or below 75 percent of the state median, limited English proficiency, disability, chronic illness, or developmental need.”^{xxxvi} NC PreK programs have consistently attained compliance with the 10 quality benchmarks identified by the National Institute for Early Childhood Research.

North Carolina Star-Rated Early Care and Education (ECE) licensing system refers to the state’s legislative requirement that child care centers and family homes serving two or more children and operating for more than four hours a day obtain a Star-Rated License. Programs that meet minimal standards receive one star; programs that meet the highest standards receive five stars.^{xxvii} Programs receiving four or five stars reflect the highest level of quality in the North Carolina licensure system.^{xxviii}

Persistent poverty is defined by the U.S. Department of Agriculture as occurring when 20 percent or more of the population has lived in poverty over a 30-year period. In the United States, there are 353 persistently poor counties, most of which are not in metropolitan locations. About eight in ten counties with persistent poverty are in the South.^{xxix}

Preschool is generally understood to be an “educational establishment or learning space” for children ages three and four designed to promote healthy development and school readiness. Across the nation, these programs are also called nursery schools, PreK or prekindergarten programs, and they are offered before the start of compulsory education.^{xxx} In 2015, 22 percent of all four-year old North Carolina children were served in the NC PreK program (26,851) and an additional six percent of all three- and four-year old children (18,542) were served by federally-funded Head Start.^{xxxi} Another data source reports that in 2016 just six percent of all North Carolina three-year old children and 31 percent of four-year old children were enrolled in public preschool.^{xxxii}

III. High-Quality Early Care and Education, Birth to Age 5: Why It Matters

High-quality center- and school-based early care and education programs help prepare all children for school and life success. Children in higher quality programs have more advanced language and pre-math skills, more advanced social skills, warmer relationships with their teachers^{xxxiii} and fewer behavioral challenges.^{xxxiv} These kinds of gains are particularly powerful for children from low-income families and those at risk for academic challenge who, on average, start kindergarten behind their peers in pre-literacy and language skills.^{xxxv}

Enrollment in early care and education programs can also lend consistency and stability to children’s lives, advancing their social competence, behavioral and cognitive outcomes, language development, school adjustment, and overall child well-being.^{xxxvi} While research confirms the power of high quality early care and education to advance child outcomes, in North Carolina approximately 47,500 young children were served in centers rated below high quality (one, two, or three stars) in 2015.^{xxxvii} See Appendices A and B for more detail.

Early educators may be the first to notice delays and social-emotional challenges and make recommendations for intervention. In the North Carolina, for example, enrollment in Smart Start early childhood and NC PreK have resulted in a reduction of 32 percent in special education designations made at the third grade. The cost of special education is generally accepted to be about twice the cost of regular public education.^{xxxviii}

The positive impact of high quality early care and education lasts into the elementary school years. Longitudinal studies of North Carolina children as they progress through the K-8 school system show robust positive effects of the NC PreK program in third graders' test scores for reading and math,^{xxxix} and a reduction in special education designations at the third grade.^{xi}

Finally, research has shown reciprocal benefits in both language and mathematics development when young children from both lower- and middle- or upper-income families are enrolled in the same program.^{xli} This is sometimes called “the spillover effect.”^{xlii} Middle- and lower-income children benefit substantially from high-quality early education, and the benefits outweigh costs for children in both groups.^{xliii}

Based on national census data, of the 11 to 12 million children under age five enrolled in early care and education, one third are in center-based care, and two thirds are in family child care, both licensed and unlicensed.^{xliv} As many as six in ten young children are reported to “regularly” spend time in unlicensed family care, most in the care of relatives who are often grandparents.^{xlv} This is more likely for infants and toddlers than older children. The use of family, friend and neighbor care is also more common among lower-income mothers and among families of color than other groups.^{xlvi} Informal care is also more frequently used to cover non-standard working hours and school vacations.^{xlvii}

In North Carolina, 96 percent of children in licensed childcare are in centers; just four percent are in licensed family homes. However, as of June 2017, there were 453,223 children under six in North Carolina living in a household where the sole parent or both parents were working. Only 41 percent of these children are enrolled in licensed child care, suggesting that the other 59 percent are in some form of informal care.^{xlviii}

Informal caregivers tend to have lower educational levels than providers in licensed early care and education, and to have gained their experience from their own children or caring for others. Informal caregivers tend to care for children over longer periods of time (e.g., for up to 12 months) with fewer disruptions than in other settings. Among informal caregiver homes rated using assessment tools, reports of quality range from inadequate to minimal. The relationship between the caregiver and parent are, however, “strikingly” positive.^{xlix}

Age-appropriate developmental practice and curriculum for early care and education is anchored in the use of guided play as the foundation for children’s growth.ⁱ A recent study employing national Early Childhood Longitudinal Study data compared kindergarten practices in 1998 and 2010, and revealed a dramatically expanded focus on academic skills with less learning time committed to play.ⁱⁱ As compared with 31 percent of teachers in 1998, 80 percent of teachers in 2010 expected children to learn to read in kindergarten. More teachers in 2010 expected reading and mathematics instruction to begin in preschool (64 percent vs. 34 percent), and said that children should be able to use a pencil and paintbrush at entry to kindergarten (68 percent vs. 35 percent).

IV. High-Quality Elementary Education, Kindergarten through Third Grade: Why It Matters

Continued high-quality education in elementary school is critical for building a strong foundation for learning. Children who attend high quality preschool programs followed by elementary schools that do not continue “the same level of academic rigor and developmentally appropriate practice” are at risk of

losing the gains they have made.^{lii} Children who are “exposed to mediocre or poor instruction” lose developmental and learning gains.^{liii}

Lack of academic progress in the early elementary school years can be predictive of later academic challenges. Children who are not reading proficiently at the end of the third grade are four times more likely not to graduate, and for children of color the rate of high school non-completion doubles.^{liv} Math skills at entry to kindergarten predict math and reading skills in the second and third grades.^{lv} Chronic absences in elementary school—beginning in kindergarten—not only predict future academic challenges^{lvi} but are predicted by absences in early care and education.^{lvii}

Reading problems among third to fifth grade students correlate with later learning, life and economic challenges including lower adult literacy, youth delinquency and later incarcerations, and lifelong economic challenges.^{lviii} Reading challenges in the early elementary school years also impact students’ ability to acquire middle and high school mathematics skills and competencies.^{lix} Based on a recent international survey of adult literacy and numeracy skills, 50 percent of US adults performed at the lowest three levels of literacy and just 13 percent performed at the highest levels. Among unemployed adults, 64 percent performed at the lowest levels of literacy. Numeracy performance was even lower, with 78 percent of Americans performing at the lowest levels of numeracy.^{lx}

V. High Quality Early Care and Elementary Education: Connections to Other Pathways Measures of Success

Just like the domains of child development, the Pathways Measures of Success are highly interconnected. The table and text below outline the measures that *influence* or *are influenced by* High Quality Early Care and Elementary Education.

Health and Development on Track, Beginning at Birth	Supported and Supportive Families and Communities	High Quality Birth-through-age-Eight Learning Environments with Regular Attendance
Early Intervention	Formal and Informal Family Supports	Promotion to Next Grade
Social-Emotional Health	Positive Parent-Child Interactions	Summer Learning
	Reading with Children	Regular Attendance

Early Intervention

Undetected developmental problems and emotional disturbance may cause delays in acquiring speech and language, the inability to maintain relationships, and serious impediments to school learning.^{lxi} Early intervention through the federal IDEA Part C program is designed to screen for, identify and ensure treatment to remediate these challenges to the greatest extent possible. See the Pathways *Early Intervention* working paper.

Social-Emotional Health

To become successful in learning and social environments, young children need to begin to develop self-regulation skills and social-emotional competence.^{lxii} These skills involve the ability to control one’s feelings and behavior, understand the feelings of others and “get along” with peers and teachers.^{lxiii} Together, children’s relationships and activities and the “places in which they live, learn and play” are critical to the development of social emotional skills.^{lxiv} The development of social-emotional skills is an intentional goal of high quality early learning settings.^{lxv}

Formal and Informal Family Supports and Positive Parent-Child Interactions

Even by the age of three, lower-income children have demonstrably smaller vocabularies than do middle and upper income children.^{lxvi} Negative or unresponsive parent-child interactions have been shown to delay early language development and limit vocabulary growth.^{lxvii} Young children who live with other adverse childhood experiences, including family dysfunction, violence and poverty, can experience developmental delays, limited vocabulary development, reduced self-regulation skills, reduced school readiness and challenging school performance.^{lxviii} Formal and informal support systems for families can serve as protective factors.

Reading with Children

There is a positive correlation between regular parental book reading and young children’s language development, early reading achievement, and school readiness. When adults read to young children and engage them in rich conversations, children develop larger vocabularies, learn to read more easily, and grow stronger emotionally. Early language and literacy develop concurrently, beginning at birth with ongoing visual, vocal and verbal exchanges between a very young child and his or her mother, father or other primary caregiver. “What children learn from listening and talking contributes to their ability to read and write, and vice versa.”^{lxix}

Promotion to Next Grade

High-quality early learning and preschool programs help prepare all children for school and life success.^{lxx} Students enrolled in schools that provide integrated supports have better academic outcomes, including lower rates of grade retention.^{lxxi} Students enrolled in the Communities In Schools model have a 93 percent grade promotion rate, increased attendance and graduation rates.^{lxxii}

In North Carolina, research reveals robust positive effects of quality early education in third graders’ test scores for reading and math^{lxxiii} and a reduction in special education designations at the third grade.^{lxxiv} Even more recently, research on North Carolina early education outcomes reveals “significant positive impacts” in math and reading scores along with reductions in grade retention and special education in the fifth grade.^{lxxv}

Summer Learning

Research has documented that low-income children lose two to three months of learning over the summer. In contrast, students from higher-income families make slight gains. By the fifth grade, the cumulative summer learning loss in math and reading can leave lower-income students behind by over two years when compared with their higher-income peers.^{lxxvi}

Regular School Attendance

Chronic absence from early education settings limits children’s learning.^{lxxvii} Chronic absence is generally defined as missing 10 percent of the days a program is open, regardless of the reason. Chronic absence in preschool and kindergarten sets a pattern that continues through schooling, with significant negative academic results.^{lxxviii} For low income children, chronic absence in kindergarten correlates with lower achievement in fifth grade. Chronic absence in the sixth grade begins to predict failure to graduate from high school. By eighth grade, missing 20 percent of school days is a better predictor of dropping out of high school than are grades.^{lxxix}

VI. Context Matters: Early Care and Elementary Education Workforce, Compensation and Program Quality

The following issues are important to consider when planning policy, practice and program strategies to address High Quality Birth to Eight Early Care and Elementary Education.

Teachers and Administrators

Research reveals characteristics of effective educators: trusting and responsive relationships with students and families; individualized teaching; effective balancing of adult-guided activities and child-initiated play; using scaffolding learning and coordinated instructional tools; a daily focus on language, literacy and communication, and home supports for dual-language learners; and ongoing reflection and personal growth.^{lxxx}

Staff at high quality early care and education programs work with parents to increase their attachment to their children, educate parents on age-appropriate child development, and connect families to social supports.^{lxxxi} Comprehensive early childhood initiatives, like Smart Start, that deliver or link with an integrated system of early education, health services and family services support children and their families in a multi-generational context.^{lxxxii}

In both early care and education and elementary school settings, the quality of the workforce is a major contributor to children’s learning success.^{lxxxiii} High quality teacher-child interactions result in large academic and social benefits to all children. Teachers maximize child learning when they “emphasize conceptual understanding, give feedback that extends students’ skills, and engage children in conversation”^{lxxxiv} throughout the day. Children in these classrooms exhibit fewer behavioral problems and better academic outcomes than children in classrooms with fewer high quality interactions. Children with socio-economic, academic or behavioral disadvantages benefit most from high quality interactions.^{lxxxv}

A recent report by the Brookings Institution reveals that substantial student gains in low performing schools occurred when the schools improved the “composition of the educator workforce through differentially retaining more effective teachers and by improving the professional supports for teachers in the schools.”^{lxxxvi} Good teaching advances children’s learning. Poor or mediocre teaching hinders learning and development.^{lxxxvii}

Strong school leadership is also correlated with improved student achievement.^{lxxxviii} No individual school variable is a magic bullet—most factors have small effects on student achievement when viewed independently—and it is the combination of factors that can produce results. The responsibility to guide this process belongs to the school principal or center director.^{lxxxix} Principals and early care and education directors face multiple challenges, from supporting (and ensuring) teacher success to making

key business, operational, and financial management decisions. The multi-faceted nature of early education leadership requires skills and competencies to establish a developmentally-informed, positive school climate that advances the professional success of teaching staff and the academic success of the children they teach.^{xc, xci}

Both early care and education and elementary school settings need high quality educators, and there are currently important workforce differences.^{xcii} Nearly all K-12 teachers have attained a bachelor's degree and 56 percent hold a master's degree as well. About 60 percent of teachers in public preschool classrooms and in Head Start programs have attained a bachelor's degree. In private child care centers and non-public preschool, only one in three have attained that degree.^{xciii}

K-12 teachers must receive provisional or permanent certification before becoming teachers. In early care and education settings, certification is uncommon (unless teaching in a public PreK program) and requirements vary across states, program types and funding sources.^{xciv} Nationally, K-12 teachers are more likely than their early care and education peers to be unionized.

Compensation

The single most important factor in the provision of high quality early learning experiences is the education, experience and consistency of the workforce.^{xcv} Wages and the opportunity for career advancement constitute a core element of workforce success.^{xcvi, xcvii} Across settings and types of positions (e.g., lead teacher, teacher or assistant teacher), 44 percent of early care and education staff earn \$10 an hour or less. This is roughly equal to \$20,000 a year. An additional 30 percent earn between \$10 and \$15 an hour. This means that three of four adults working in early care and education settings earn less than \$30,000 for full-time work.^{xcviii} In addition, fewer than 40 percent of preschool teachers and early care and education staff have access to health insurance through their employers and fewer than 33 percent have retirement plans.^{xcix}

A recent report summarized the problems with the current early care and education business model, including how low wages can drive low performance. "Public funds for child care typically include per-child rates that assume historically low wages for providers. In the private market, most parents cannot afford higher fees, but current prices do not allow for needed wage increases, comprehensive benefits, and supports for professional development. Unsurprisingly, poor pay and higher levels of teacher stress are associated with lower observed classroom quality in early childhood programs. Moreover, programs that serve predominantly low-income children are especially less likely to have the resources to compensate and support highly qualified teachers, meaning that these children may be experiencing high levels of stress from multiple sources."^c

Four in ten child care workers are enrolled in public assistance programs based on their income eligibility.^{ci} Low wages make it difficult to hire and retain more experienced staff, contributing to staff turnover. The same health and mental health challenges that face low-income families in general (including high stress and depression) can also occur for low-wage early care and education staff when their salaries do not allow them to care adequately for their own children.^{cii}

The U.S. Department of Education released a report in June 2016 with state-by-state and national data on median salaries in early care and education, and elementary school.^{ciii} In North Carolina, the median salary for child care workers was \$19,500, for Head Start teachers \$25,970 and for preschool teachers

\$26,139. In contrast, the median salary for preschool special education teachers was \$46,520. For kindergarten teachers, the median salary was \$39,930 and for elementary school teachers, \$42,170.

Nationally, K-12 education is almost exclusively publicly funded and employs nearly four million teachers. Early care and education is largely privately funded, mostly through parent fees, and employs about two million teachers.^{civ} In contrast to K-12 funding, early care and education administrators must blend and braid city/county, state and federal funding streams, which is complex and administratively burdensome.^{cv}

Standards of Quality Used in North Carolina

Programs from preschool through third grade are evaluated for quality by various entities and processes determined by law, funding requirements and/or state or federal policy or statute. The chart below summarizes the standards used in North Carolina along with the most recent publicly-available data on the status of compliance. Note that there is no common set of core quality measures across the birth through third grade service continuum.

Context	Status
NIEER Quality Standards	In 2015, North Carolina’s NC PreK and Head Start programs met all 10 quality standards. NIEER’s standards were updated in 2016, and NC now meets 9 out of 10. See Appendix D for a listing.
NAEYC Accreditation	As of January 30, 2017, 112 of the nearly 4,700 licensed early care and education centers in North Carolina are NAEYC-accredited.
Head Start Funding Reauthorization	As of a January 2017 web search, 540 NC Head Start or Early Head Start/Head Start programs are authorized for funding (and therefore meet standards of quality).
NC Four or Five Star licensed programs.	As of 2016, North Carolina has 6,799 licensed early care and education programs, of which 4,683 are centers and 2,116 are family child care homes. Of all the licensed programs in the state, 69 percent of the centers and 45 percent of homes have a 4- or 5-star rating. ^{cvi} As mentioned above, many additional children in NC are in unlicensed and unregulated care.
North Carolina School Performance Grades	Each school is assigned a Performance Grade (A to F) annually. Eighty percent of the School Performance Grade “is based on the school achievement score. The school achievement score is calculated using a composite method based on the points earned by a school on all of the tests measured for that school. Twenty percent of the School Performance Grade is based on academic growth.” ^{cvii}

VII. Policy Options to Support High Quality Early Care and Elementary Education

A Statewide PreK through Third Grade (P-3) Alignment Framework. *Based on evidence of effectiveness from national evaluations of school districts implementing PK-3 alignment and from North Carolina’s FirstSchool Initiative, determine what statewide educational policy change is needed to authorize and support broader statewide expansion of PK-3 alignment.*

Common core elements in PK-3 alignment (also called a “three to third” approach) include:

- High quality preschool for three- and four-year old children
- Attention to the transition between preschool and kindergarten
- Alignment of curriculum from preschool through the third grade
- Cross-training of teachers across PK-3, anchored in developmentally-informed, child-centered learning
- Instructional practices that support individual children’s academic and social-emotional learning
- Active parent and family engagement
- Collection and use of data for quality improvement and accountability^{cviii}

At least one evaluation of a state’s PK-3 system has shown positive results. A five-year RAND evaluation of Hawaii’s P-3 initiative, conducted over the period 2008 through 2014, revealed third grade reading improvement equal to an additional nine weeks of schooling each year with more students in the participating group achieving reading proficiency than among the comparison group. Key contributors to this success were the development of cooperative, informed relationships among teachers across PK-3, newly implemented early learning standards, local decision-making on activities, the establishment of measurable outcomes, better policymaker-staff relationships, and parent support.^{cxix}

The National P-3 Center at the University of Washington notes that while PK-3 alignment is being implemented in many states, additional research to document both the implementation process and student outcomes is required.^{cx} A core guidance document available from the national P-3 center, *Framework for Planning, Implementing, and Evaluating PreK-3rd Grade Approaches*, could be used to examine extent or needed evidence of effectiveness.^{cxii} An outline of the framework is available in Appendix C.

North Carolina’s *FirstSchool* was launched in 2005 to create a seamless experience from preschool through the third grade for children and families, with special attention to the needs of vulnerable children.^{cxiii} FirstSchool is located at the Frank Porter Graham Child Development Institute, University of North Carolina, and is aligned with the national P-3 Center housed at the University of Washington.^{cxiii} Implementation of a PK-3 approach crosses grade levels and often program sites, involves several groups of stakeholders (i.e., families, teachers and administrators), and often involves change at the policy and practice levels, including professional development, data development and use, and accountability.^{cxiv}

Early Care and Education and Elementary School Experiences Linked to Child Outcomes. *Authorize, through administrative, regulatory or legislative action, a periodic review of the relationships between early care and education and early grade elementary school programs and actual student outcomes.*

The preschool through higher education and work (P-20W) data system currently being developed in NC will enable the state to examine the relationships between measures of program quality and child outcomes across age ranges, types of settings and specific programs. With a common ID used across public systems, children and their outcomes will be trackable from the first time they enter a state system through their interactions with state systems into adulthood. Current partners providing data to the P-20W system include the NC Department of Public Instruction (NCDPI), the University of North Carolina General Administration (UNCGA), the NC Community College System (NCCCS), the NC Independent Colleges and Universities (NCICU), the Labor and Economic Analysis Division (LEAD) of the NC Department of Commerce, and the NC Department of Health and Human Services (NC DHHS).^{cxv}

Access and the Cost of Quality in Early Care and Education. *Annually project additional costs for NC early care and education programs to achieve high quality as measured by NIEER quality standards, NAEYC (National Association for the Education of Young Children), accreditation, Head Start standards, and the North Carolina Star Licensing Program.*

Based on findings from the February 2017 legislative study, Study Costs and Effectiveness Associated with NC Pre-K Slots,^{cxvi} develop a multi-year investment strategy to (1) increase the state’s contribution to the total cost of Pre-K services, (2) raise the salaries of Pre-K staff to approach parity with kindergarten teachers with the same education and experience, and (3) support parents to be able to afford and access high quality early care and education.

The current child care business model is flawed. The actual costs to a provider of high quality care result in fees charged to parents that are higher than most can afford. And yet, child care teachers are not paid on par with kindergarten and first grade teachers, which drives down teacher quality. Providers do not have wiggle room in the cost and fee structure to increase teacher salaries. For NC Pre-K, where the state is funding the slot rather than the parents, there is an added wrinkle—state reimbursement rates do not cover the full cost of the slot that the provider incurs. Receiving less than full reimbursement for an NC Pre-K slot means that other funding must be braided in to cover the difference, which is costly and administratively burdensome for programs.

Costs and Reimbursement for NC Pre-K Slots. In 2016, 27,019 four-year-old children were enrolled in NC Pre-K. The average annual cost of an NC Pre-K slot is \$9,112, of which the state reimburses on average 61 percent, or about \$5,535.^{cxvii} Costs and reimbursement vary based on whether the slot is in a Head Start, public school or private child care classroom. Those varying reimbursement rates are determined based on factors specific to each setting such as the additional costs needed to meet NC Pre-K requirements, average salaries of teachers, and administrative overhead costs. These data are outlined below.

NC Pre-K Average Costs and Funding by Setting

	Head Start	Public School	Child Care
Average Staffing Expenses per Slot*	\$7,082	\$6,379	\$6,541
Average Operating Costs Per Slot*	\$2,114	\$2,752	\$2,548
Total Average Cost per Slot	\$9,197	\$9,131	\$9,088
Average Annual NC Pre-K Funding per Slot**	\$3,964	\$4,777	\$6,257
Percent of Costs Covered by State NC Pre-K Funding	46%	56%	72%

* To determine the NC Pre-K cost per slot in all sites, the analysis took into account the costs associated with providing education to all pre-kindergarteners at the site and not just those enrolled in the NC Pre-K program

**The reimbursement rate structure outlined was implemented by DCDEE in Fiscal Year 2012-13.

NC Pre-K Staff Salaries. Personnel expenses is the main contributor to the cost of NC Pre-K. Among private child care providers and public preschools, workforce costs equal about 72 percent of all costs. Among Head Start providers, workforce costs equal about 77 percent. As outlined above, in North Carolina in 2016, the median salary for child care workers was \$19,500, for Head Start teachers \$25,970 and for preschool teachers \$26,139. In contrast, the median salary for kindergarten teachers was \$39,930 and for elementary school teachers, \$42,170.

Affordability and Access for Parents. Access to child care enables parents to work, provide economic security for their families, and contribute to the national economy.^{cxviii} In America, 11-12 million children

under age five are in early care and education settings for an average of 36 hours a week, although a recent report by Child Care Aware indicates that only about 10 percent of this care “meets the quality requirements that lead to positive effects on children’s outcomes.”^{cxi} Many parents (three in four women surveyed recently, and one in two men) report having changed employment, shifted schedules, taken on second jobs, and even left the workforce in response to challenges of both quality and cost of child care.^{cxii} Parents in their middle twenties earning a median annual salary of about \$30,000 who opt out of the workforce in their children’s first five years face long-term accumulated losses in income, wage growth, benefits and retirement assets of just under \$500,000 for women and nearly \$600,000 for men.^{cxiii}

The fees charged for child care can absorb 30 percent or more of the budget of a lower-income working family, but just seven percent of the household budgets of higher-income families.^{cxiv} North Carolina ranks 11th in the nation in the cost to families of early care and education relative to median income.^{cxv} Child care subsidies—funded through the federal Child Care Development Block Grant (and companion state dollars) and designed to help support low-income families with these costs—reach only about 15 percent of the parents who are eligible to receive them.^{cxvi}

The 2015 fees for having one child in center-based care in North Carolina was just over \$9,000 per year, absorbing about 20 percent of the median income of a North Carolina family. If a family has two young children in care, those fees would double to about 40 percent of the median income.^{cxvii} For single-parent families earning the minimum wage, center-based child care fees can absorb nearly two-thirds of earnings.^{cxviii}

Access has traditionally been measured by availability and affordability of care.^{cxix} Research suggests access to high quality care and programs is highly unequal across income groups nationwide.^{cx} The federal Office of Program Research and Evaluation (OPRE) has identified a set of access barriers that help explain overall enrollment patterns, including under-enrollment and variability by geography. States with integrated data systems that link and include data from multiple sources can better create a more comprehensive picture of access by region.^{cxxi}

These barriers include:

- Geographic proximity of early care and education programs
- Limited parent and caregiver knowledge and access to information about the availability of early care and education
- Reliable transportation and the alignment of center hours with parent work hours
- Limited availability of early care and education options for families of children with physical, emotional, or developmental disabilities
- Language barriers and fear of deportation for immigrant families, regardless of immigration status^{cxv}

Elementary Education Quality. *With participation from the educational policy and research sectors, recommend one or more tools to more adequately assess the quality of K-3 classrooms. This assessment would include environmental, social-emotional and academic factors.*

The Education Commission of the States K-3rd grade quality compliance review and the federal Office of Planning, Research, and Evaluation propose guidance on measuring quality in high quality elementary education classrooms.^{cxvii} The National Association of Elementary School Principals^{cxviii} has also

presented a set of standards for measuring quality. The basic elements are summarized below. See Appendix D for a review of North Carolina K-3 quality and Appendix E for additional detail from the National Association of Elementary School Principals.

Measures of Quality in Elementary School Education	
National Association of Elementary School Principals^{cxxxiii}	Education Commission of the States^{cxxxiv}
<ul style="list-style-type: none"> • Embrace Early Childhood Learning • Engage Families and Communities • Promote Appropriate Learning • Ensure High-Quality Teaching • Use Multiple Assessments • Advocate for High-Quality, Universal Early Childhood Education 	<ul style="list-style-type: none"> • Basic Requirements (full day kindergarten; hours for K-3; teacher-child ratio K-3) • School Readiness and Transitions (Kindergarten Entry Assessment and use; School readiness definition and use; PK-K transition guidance; Reclassification for English language-learners) • Assessment, Intervention and Retention (K-3 assessments and use; K-3 interventions; third grade retention policy) • Family Engagement (required for PK-K transition, English language-learner students, third grade retention) • Social Emotional Learning (required in statute) • Use the trusted voice of the principal to advocate for the needs of young children in their communities • Become familiar with early childhood funding streams and policy issues • Keep the public and policymakers focused on the need for full-day kindergarten for all children and the importance of high-quality pre-K in a continuum of learning that helps children and schools succeed

Other school quality rating resources include:

The Environmental Rating Scales (ERS) developed through the Frank Porter Graham Institute at the University of North Carolina are valid and reliable measures of quality care environments and can be used to measure the environmental quality of formal, informal, and school settings.^{cxxxv}

The CLASS assessment is a valid and reliable measure of teacher-child interactions in Pre-K through third grade classrooms through in-class observations.^{cxxxvi} The corresponding observational tools, coaching, and professional development track progress over time and improve high-quality teaching practices.

Every Student Succeeds Act (ESSA). States must identify the quality factors they will track as part of their mandatory federal ESSA plans. To date, ten states have submitted plans for federal review. Chronic absence was the single most common indicator (included in 9 of the 10 state plans). Other indicators include: college and career readiness, ninth graders on track to graduate, and high school completion.^{cxxxvii}

Geographic Disparities in Early Care and Education Quality. *Identify causes of geographic disparities in early care and education quality across North Carolina and propose solutions.*

Studies conducted by one of the state’s institutions of higher education with a strong family and/or early childhood research program could identify those regions, counties and communities operating early care and education programs that are rated at three star or lower levels, and prepare a program-by-program analysis of causes.

As an example, the 2015 *Early Care and Education Workforce Study* found that rural counties and regions tended to operate child care programs of lower quality than other areas of the state. Based on the state’s 14 resource and referral regions, the statewide average of lowest-rated programs (one or two stars) is 17 percent, while in some regions as many as 24 percent of settings operate as one or two-star programs.^{cxxxviii} See Appendix A and B, cited earlier.

Wage Disparity Challenges. *In lieu of or in addition to minimum wage adjustments, create an industry-specific, targeted tax credit to address early care and education wage inequities.*

The current North Carolina minimum wage is tied to the federal minimum wage, set at \$7.25 in 2009.^{cxxxix, cxl} In response to documented challenges of achieving self-sufficiency among families earning the minimum wage, several states and municipalities have begun to raise the minimum wage in their jurisdictions.^{cxli}

In the child care sector, upward changes in the minimum wage, while good for employees and their families, can result in challenges for both providers and families qualifying for child care subsidies. Child care providers are unable to absorb the additional labor costs without raising the fees charged. For families, even slight improvements in income may result in losing eligibility for child care subsidies, despite the reality that the added income is insufficient to cover child care fees.^{cxlii}

An industry-specific tax credit for early care and education workers could address wage gaps between the early care and education workforce and elementary school teachers without creating financial challenges for either the provider sector or families who need the service.^{cxliii} See Appendix F for a chart comparing teacher wages across types of child care centers.

Scale of Programs Serving Preschool-Aged Children. *Identify barriers to full enrollment in high quality early education (including Head Start) and establish a five-year investment plan for North Carolina that ensures access at ages three and four for all eligible children born in 2017, with prioritization of resources for all children born into families at or below 200 percent of the Federal Poverty Level.*

Parents, providers and policymakers all face barriers in assuring that young children are enrolled in high quality early education programs. The most common challenges are related to cost and financing. The chart below outlines some of those challenges.

Parents	Providers	Policy Makers
Cost to parents	Cost of workforce compensation	Cost of quality
Transportation challenges	A poorly aligned P-3 framework	Cost of scale
Hours of operation don't match need	Conflicting financing streams and regulatory requirements	Lack of access to persuasive Return on Investment (ROI) information
Services do not match with child's special needs	Preparation demands of the accreditation process itself	Belief systems about families and child care

Family health and/or mental health challenges often associated with adversity	Recruitment and retention of well-qualified staff	Lack of a multi-year set of investment and financing strategies/options
Belief systems	Belief systems	
Family legal status		

By identifying babies born in 2017 as the first full cohort for NC Pre-K access, North Carolina would have four years to craft and fulfill a strategic expansion and investment plan, specific to the state’s geography, needs and assets. The chart below depicts the movement of this first cohort toward full NC Pre-K enrollment as four-year old children in 2021, along with access to other essential supports and services.

Born in 2017	Fall 2018	Fall 2019	Fall 2020	Fall 2021	Fall 2022
All babies born into families at or below 200 percent of the FPL	Babies become one year old	Toddlers become two years old	Preschoolers become three years old and enter free, public NC Pre-K	Preschoolers become four years old and enter free, public NC Pre-K	Children enter kindergarten at five years old
Other Resources	Access to home visiting, parenting interventions, family supports to meet basic needs, parental intervention for depression and other mental health or substance use challenges, early literacy resources for parents and children				Family engagement; P-3 alignment

VIII. Practice Options that Promote High Quality Early Care and Elementary Education

Establishing a Research to Policy Partnership on North Carolina Informal Care

Across the nation, stakeholders from very different sectors have come together to build an information base about informal care in their jurisdictions and to test strategies to support this “system” of care that serves so many vulnerable young children with little or no regulation. Examples of these partnerships include: *Promoting First Relationships*^{cxliv} through the University of Washington; *First Steps Family, Friend, and Neighbor Program*^{cxlv} with the Grand Rapids, Michigan School System; *Tūtū and Me Play and Learn Groups*^{cxlvi} in Hawaii with the Partners in Development Foundation and the Association of Hawaiian Evangelical Churches and the United Church of Christ, the Kamehameha School District and the Hawaii State Department of Social Services; and the Oregon *Family, Friend, and Neighbor Training and Toolkit Project*^{cxlvii} through SEIU Local 503, the Oregon Commission on Children and the Oregon Department of Education’s Child and Adult Food Care Program.

The proposed NC informal care research and policy partnership could include, as an early part of its agenda, the following action steps:^{cxlviii}

- **Administrative Data Analytics.** Using administrative data and surveys, determine the prevalence and characteristics of informal care in North Carolina, especially child care by grandparents and other extended family members.

- **Accountability and Outcomes.** Examine the tools and processes for gathering data on child outcomes in family, friend and neighbor care. Determine whether the current NC Quality Rating and Improvement System can be modified to include voluntary registration by informal caregivers.
- **Federal Policy and Program Impacts.** Examine how informal care in North Carolina is likely to be impacted by changes at the federal level (including as the result of the recently reauthorized Child Care Development Block Grant and possible new funding sources). Explore how evidence-informed programs now operational in other states could be funded and implemented in North Carolina to support caregivers providing informal care for young children.
- **A Research Agenda.** Gather and analyze results from other jurisdictions that have implemented various support strategies with extended family informal care. Study the impact on child outcomes resulting from the expansion of kin care.

The National Women’s Law Center has published a *Catalog of Strategies to Support Family, Friend and Neighbor Care*.^{cxlix} Detailed examples of efforts from Arizona, California, Colorado, Connecticut, Illinois, Michigan, Missouri, Oregon and Vermont are included. Current efforts to improve the quality of care offered within informal care settings include the following strategies:^{cl}

- Making evidence-based home visiting services available to family, friend and neighbor caregivers
- Linking family, friend and neighbor caregivers with licensed child care centers in a hub and spokes model
- Involving family, friend and neighbor caregivers in play and learn groups sponsored by licensed family child care providers
- Increasing training opportunities for family, friend and neighbor caregivers in child development, early literacy and available service and support resources.

Improving Opportunities for Family Engagement, School-Parent Partnerships and Parent Knowledge about Quality

Federal guidance, most recently through the Every Student Succeeds Act (ESSA), and North Carolina Department of Public Instruction guidance both stress the importance of family and parent engagement in children’s education and their knowledge of school quality. Expanded family engagement guidance in ESSA can be informed by the North Carolina state guidance to create new family engagement practices across the state.

The federal Every Student Succeeds Act (ESSA) renames “parental involvement,” a required element of Title I education, as “parent and family engagement” and requires that schools receiving Title I federal funds conduct outreach to all parents and family members of enrolled students. Each school district receiving Title I funds must develop, with parents and family members, a family engagement policy and incorporate that policy into the school district’s strategic plan. Objectives for family engagement must be specified and measured, and at least one percent of Title I funds must be reserved to support districts in implementing parent and family engagement activities. Funded activities must include at least one of the following:

- Professional development for district personnel in family engagement strategies

- Home-based programs for students and families
- Information sharing of best practices in family engagement
- Collaboration with community organizations with a record of successful family engagement
- Other^{cli}

The North Carolina Department of Public Instruction has published online a *Toolkit for Parent, Family and Community Involvement*.^{clii} The Toolkit includes three components:

- *The Family and Community Engagement in Schools (FACES) Assessment,*
- *The Family and Community Engagement in Schools Action Plan* and
- *The School-Family-Community Resource Guide.*

Creating a Comprehensive, Aligned, Birth to Third Grade Educator and School Leader Professional Development System

Professional development opportunities currently are siloed in birth-to-five or K-3, with little to no cross-system pollination. Training opportunities are not always specific to the skills needed by teachers and school leaders to be most effective. With appropriate representation across the early care and education and elementary education systems, North Carolina could identify opportunities to expand a comprehensive professional development system that would include support for the attainment of higher level credentials and co-training across settings as well as sector-specific professional development. All opportunities would be developed and delivered within a developmentally-appropriate, science-informed, birth through third grade aligned learning framework.

Aligned, comprehensive birth to third grade professional development opportunities are needed for educators and for school leaders.

Professional Development for Educators

High-quality professional development improves educator professional practice. A review of 35 studies over the past 30 years has found that professional development programs that result in gains in student achievement have several features in common. They:

- Are focused on the subject area the teacher teaches
- Incorporate active learning
- Support collaboration
- Use models and modeling to demonstrate effective practice
- Provide expert coaching and support
- Offer opportunities for feedback and reflection, and
- Are sustained in duration, over months or years.^{cliii}

Better trained professionals create better learning conditions and environments which, then, impact on student learning.

A well-designed system would satisfy the following criteria, proposed by the Center for American Progress.^{cliv} The text below is largely cited from the source document.

- Credentials have labor market value for advancement and greater compensation.
- Credentials are portable and widely accepted across programs and states “as a verification of teacher qualifications.”

- Credentials are stackable and build upon each other allowing early childhood educators to move from “short-term certificate programs to longer-term degree programs.”
- Coursework is accessible to staff working either part-time or full-time and across multiple languages, includes a combination of online and in-person formats, on evenings and weekends and in locations that are easily accessible to workers.
- Experiences and supports go beyond coursework to include workshops, technology offerings and continuous technical help through mentoring and coaching.
- Credit is given for prior learning.
- System includes an ongoing quality assurance process to ensure that the program represents the most current research and standards of best practice.^{clv}
- System reflects issues of child and family diversity and challenges educators to recognize implicit bias.^{clvi}
- Professional development provides science-informed content for educators serving children with special learning needs, including those who are English language learners^{clvii} that recognizes and builds on their unique assets.^{clviii}

Many states have increased degree and credential requirements for early childhood teachers to ensure children receive the highest quality educational experience. This is most obvious in publicly-funded pre-K. In 2015, NIEER reported that 33 states required a bachelor’s degree for lead teacher and 21 required at least a CDA for assistant teachers.^{clix} Head Start has also slowly increased teacher degree requirements over time. After a rigorous review of the literature, the Institute of Medicine (IOM) issued a recommendation that all lead teachers in *all* early childhood settings have at least a bachelor’s degree.^{clx}

Additionally, the IOM reports that increasing degree requirements is not in-and-of itself a shortcut to quality and stability in the workforce. Any changes to credentials must be made based on a clear timeline, keeping in mind the local job market and the need for close collaboration with institutions of higher education.

Professional Development for School Leaders

A wealth of research has shown that instructional leadership is one of the most influential school-related factors related to student achievement, second only to teaching. This impact is greatest in schools with populations of higher need.^{clxi, clxii} Like teachers, school leaders need effective preparation, evaluation, and ongoing professional supports to be successful instructional leaders. Children’s transitions between early care and education and elementary school are smoothest when elementary school principals understand child development and value early care and education.^{clxiii, clxiv}

The Wallace Foundation cites five core practices of effective school leaders (cited directly):

- Shaping a vision of academic success for all students
- Creating a climate hospitable to education
- Cultivating leadership in others
- Improving instruction
- Managing people, data and processes to foster school improvement^{clxv}

Effective school leaders are those that set a caring and professional community, foster collaboration, ensure safe learning environments, and routinely engage with teachers on data and professional development.^{clxvi}

To reduce turnover and better equip school leaders for their personal success and that of their teachers and students, the National Association of Elementary School Principals recommends that state and local education agencies build leadership capacity of future school leaders by thoroughly defining the roles and qualifications of administration and developing common competencies of effective leadership.^{clxvii}

School leaders need regular feedback to improve leadership skills. Evaluation tools that create and assess performance goals tied to domains of effective leadership are critical to measuring and improving leadership capacity. A valid, reliable rating system for measuring effectiveness and quality that takes school and community factors into account would measure growth rather than overall performance for chronically or historically underachieving schools. Some districts rely on mentorship models to foster development.^{clxviii}

Advancing a Social-Emotional Learning Framework

The Pyramid Model for Promoting the Social and Emotional Development of Infants and Young Children is a “tiered intervention framework” based on evidence-based interventions that promote young children’s social-emotional and behavioral development.^{clxix} The model promotes universal positive social-emotional development and includes targeted prevention and intervention levels.

The first level, Tier I—promoting young children’s social-emotional development—is based on what is needed to build strong nurturing interpersonal relationships and environments. Practices associated with each element of Tier I are shown in the chart below, cited directly from the model.

Promoting Relationships: Parent-Child, Teacher-Child and Peer-to Peer	Promoting Environments: Classrooms and Early Education Programs
<ul style="list-style-type: none"> • Actively supporting children’s engagement • Embedding instruction within children’s routine, planned, and play activities • Responding to children’s conversation • Promoting the communication attempts of children with language delays and disabilities • Providing encouragement to promote skill learning and development.^{clxx} 	<ul style="list-style-type: none"> • Using curriculum that fosters all areas of child development • Using developmentally and culturally appropriate and effective teaching approaches • Designing safe physical environments that promote active learning and appropriate behavior • Providing positive and explicit guidance to children on rules and expectations • Design of schedules and activities that maximize child engagement and learning.^{clxxi}

Tier II is focused on preventing impaired social skill development and emotional dysregulation and is based on the understanding that while all children require some adult guidance to learn appropriate expression of their emotions, cooperation and problem-solving, some children require more systematic and intentional instruction.^{clxxii} For family members and teachers, Tier II practices include guidance, coaching, and support to promote children’s targeted social and emotional skills, including regulation of children’s emotions and stress and building the capacity to understand the feelings and emotions of others.

Tier III interventions are intensive and individualized, and designed from Positive Behavior Intervention and Support (PBIS) practices. PBIS can be implemented across environments and by caregivers. Within the context of the Pyramid Model, PBIS involves the following practices:

- Convening a team, including the family and teacher or other caregivers, to create and implement a child’s intervention plan
- Conducting a functional assessment to identify factors related to the child’s behavior
- Identifying strategies designed to address factors that trigger the child’s behaviors
- Implementing “replacement skills” as alternatives to the challenging behaviors and strategies to ensure that the challenging behavior is not reinforced^{clxxiii}

PBIS in North Carolina. From 2008 through 2011, North Carolina participated in a multi-state initiative to implement the Pyramid Model. Training during this implementation period was provided to practitioners and administrators from Smart Start, Head Start, Early Head Start, Migrant Head Start, Early Interventionists, and Child Care specialists. The work and resources of this team continue to be available online.^{clxxiv} Currently, the national Technical Assistance Center for Social Emotional Intervention (TACSEI), funded through the US Department of Education’s Office of Special Education Programs, offers technical assistance to states on the pyramid model to improve the early care and education workforce and support young child social-emotional development.^{clxxv}

Positive supports implemented by North Carolina school districts participating in the statewide initiative are shown below.

Universal Practices Expect to Benefit 80 percent of Students	Target Group Interventions, 15 percent of Students	Intensive Interventions, 5 percent of Students
School-Wide Rules and Procedures Systemic Reinforcement Social Skills Instruction Culturally Responsive Practice Data-Based Decision-Making Parent/Community Partnerships	Social Skills Instruction Reinforcement of Specific Skills Group Behavior Strategies Classroom Coaching	Individualized Interventions Functional Behavior Assessment Behavior Intervention Planning

As reported by the North Carolina Department of Public Instruction, schools implementing PBIS experienced more instructional time, improved staff and student attendance, increased student proficiency in math and reading, increased parent participation and partnership, improved community involvement and support, and decreased staff turnover.^{clxxvi}

North Carolina Healthy Social Behaviors in Child Care Center Settings initiative. This project, based on the CSEFEL pyramid model, addresses behavioral issues by offering services to child care center teachers and administrators designed to identify, prevent and modify challenging behaviors with a goal of reducing the expulsion rate of NC child care centers.^{clxxvii} Healthy Social Behavior Specialists are housed in the regional lead child care resource and referral agencies and, as a team, serve all 100 counties in North Carolina. A Project Manager, employed by Child Care Resources Inc., provides guidance and oversight of the project. More than 4,000 child care centers have been served since the project began in 2005.

The Healthy Social Behaviors project is being expanded to provide more pyramid model training to cross-sector early childhood professionals, help create course content to embed social-emotional development theory and practice in college coursework, and expand training for program administrators and child care center owners on North Carolina’s new policy on suspensions and expulsions in licensed child care settings.

IX. Evidence-Based Program Options that Promote Early Education Success

Reading Interventions

Reading intervention research results are frequently organized around five components of literacy – phonemic awareness, phonics, fluency, comprehension, and vocabulary. Because there are many evidence-informed interventions within the reading domain, a group of comparative websites are provided below. The reader may then choose to look across and within sites to examine information on program purpose, effectiveness and replicability. See the Pathways brief on *Promotion to Next Grade* for additional information.

- **Reading Rockets Invention Programs Comparative Charting.**^{clxxviii} This site provides information including grade appropriateness, instructional format and assessment resources for groups of reading interventions that have been reviewed by such rating entities as What Works Clearinghouse, the Florida Center for Reading Research, and the Best Evidence Encyclopedia.
- **National Center on Intensive Intervention: Elementary School Reading.**^{clxxix} This site provides information on the results of studies of reading intervention programs (and practices) including level of evidence, type of study and participants, program design, fidelity of implementation, and measures of outcomes. In addition to research studies specific to an intervention, the site indicates whether the program has been reviewed by the What Works Clearinghouse.
- **The IRIS Center.**^{clxxx} This site, located at Vanderbilt University and Claremont Graduate University, identifies evidence-based instructional and intervention practices (and programs) for use in pre-service preparation and professional development PreK-12 programs. IRIS also disseminates and offers trainings on those resources. Topics for which summaries are available include assessment, learning strategies, reading and literacy, and mathematics.

In addition, efforts such as Read Charlotte^{clxxxii} have closely reviewed the evidence on individual programs that intervene to promote early reading skills and accomplishment. A report on this review of “what works” and the interventions selected for inclusion as part of this initiative are available at Read Charlotte online.

Mathematics Interventions

- **National Center on Intensive Intervention.**^{clxxxii} This site provides information on the results of studies of mathematics intervention programs (and practices) including level of evidence, type of study and participants, program design, fidelity of implementation, and measures of outcome. In addition to research studies specific to an intervention, the site indicates whether the program has been reviewed by the What Works Clearinghouse.
- **University of Missouri Evidence-Informed Intervention Network: Mathematics.**^{clxxxiii} This site provides math interventions focused on specific content areas linked with the type of problem

being demonstrated by the student (i.e., acquisition, proficiency or generalization). Each intervention rated includes a summary brief for use at the school level.

- **Johns Hopkins University Best Evidence Encyclopedia.**^{clxxxiv} This site includes top-rated elementary school instructional practices for mathematics along with website locations for each.
- **Hanover Research.**^{clxxxv} This best practices site provides a review of the mathematics instruction literature and identifies the following as evidence-supported programs: Fraction Face-Off!; Hot Math Tutoring; Number Worlds; I CAN Learn Pre-Algebra and Algebra; DreamBox Learning; enVisionMATH; Do The Math.
- **The IRIS Center.**^{clxxxvi} See summary, above.

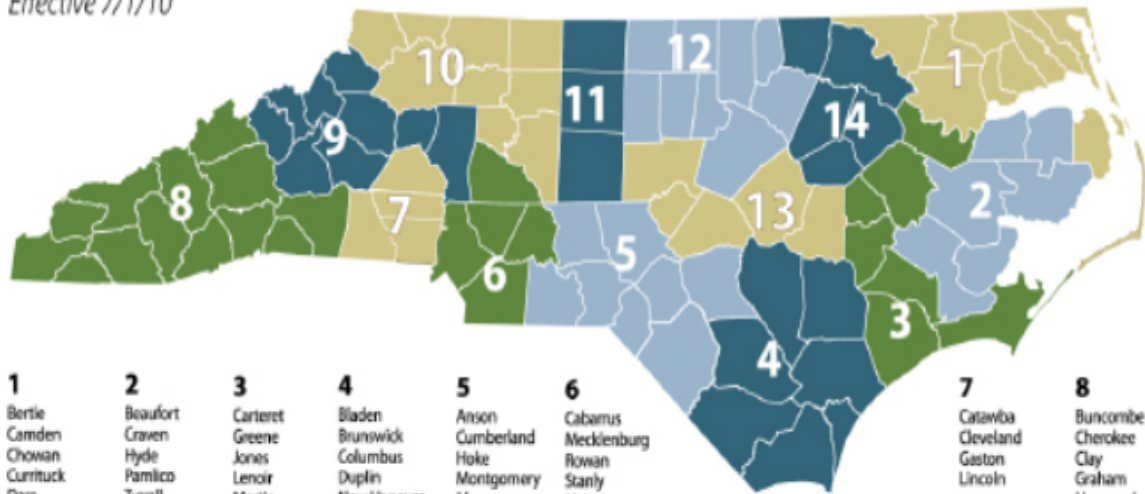
Appendix A. North Carolina Child Care Resources & Referral (CCR&R) Regional System

This information was developed by the NC Child Care Resource & Referral Council and is cited from the 2015 North Carolina Child Care Workforce Study.

Appendix A

North Carolina Regional CCR&R System - 14 Region System

Effective 7/1/10



1 Bertie Camden Chowan Currituck Dare Gates Hertford Northampton Pasquotank Perquimans	2 Beaufort Craven Hyde Pamlico Tyrnell Washington	3 Carteret Greene Jones Lenoir Martin Onslow Pitt	4 Bladen Brunswick Columbus Duplin New Hanover Pender Sampson	5 Anson Cumberland Hoke Montgomery Moore Richmond Robeson Scotland	6 Cabarrus Mecklenburg Rowan Stanly Union	7 Catawba Cleveland Gaston Lincoln	8 Buncombe Cherokee Clay Graham Haywood Henderson Jackson Macon Madison Polk Rutherford Swain Transylvania
9 Alexander Avery Burke Caldwell Iredell McDowell Mitchell Watauga Yancey	10 Alleghany Ashe Davidson Davie Forsyth Stokes Surry Wilkes Yadkin	11 Guilford Randolph Rockingham	12 Alamance Caswell Durham Franklin Granville Orange Person Vance Wake	13 Chatham Harnett Johnston Lee Wayne	14 Edgecombe Halifax Nash Warren Wilson		

Regional Lead Agencies

- Region 1: Albemarle Smart Start Partnership, Inc. (Pasquotank County)
- Region 2: Craven Smart Start, Inc.
- Region 3: Martin-Pitt Partnership for Children, Inc.
- Region 4: Southeastern CCR&R (Columbus County)
- Region 5: Cumberland County Partnership for Children
- Region 6: Child Care Resources Inc. (Mecklenburg County)
- Region 7: Child Care Connections of Cleveland County
- Region 8: Southwestern Child Development Commission, (Jackson County)
- Region 9: Iredell County Partnership for Young Children
- Region 10: Work Family Resource Center, Inc. (Forsyth County)
- Region 11: Guilford Child Development (Guilford County)
- Region 12: Child Care Services Association (Orange County)
- Region 13: Child Care Networks, Inc. (Chatham County)
- Region 14: Down East Partnership for Children (Edgecombe County)

Appendix B. North Carolina Children Served in Lower Quality Child Care by Region

In North Carolina in 2015, approximately 47,500 young children were served in centers with a rating of three stars or fewer. A rating of four or five stars equates to high quality. There are important regional differences in quality levels and the numbers of children being served by programs at these lower quality levels. These data, charted below, were constructed from the 2015 North Carolina *Early Care and Education Workforce Study*.^{clxxxvii}

Region	% of Programs at Level 3 or Lower	# Children Served in these programs	Region	% of Programs at Level 3 or Lower	# Children Served in these programs
1	29%	1034	8	21%	2239
2	23%	681	9	21%	1374
3	30%	2838	10	32%	3972
4	29%	3035	11	35%	4495
5	33%	5381	12	26%	8944
6	22%	6145	13	36%	3665
7	26%	2361	14	28%	1500

Appendix C. Framework for P-3 Alignment

The framework below, from National P-3 Center’s report, *Framework for Planning, Implementing, and Evaluating PreK-3rd Grade Approaches*, could be used to examine effectiveness.^{clxxxviii} Text is cited directly from the source.

A Framework for Planning, Implementing, and Evaluating P-3 Approaches	
Categories	Strategies
Cross-Sector Work	<p>Governance Establish and support collaborative (cross-organizational and cross-sector) board or committee that formalizes decision-making roles and responsibilities among partners and prioritizes P-3 efforts.</p> <p>Strategic Plans Develop, share, and regularly update a strategic plan for the P-3 work that reflects shared commitment to improving outcomes for children.</p> <p>Funding Generate, reallocate, leverage, connect, and/or blend public and private funds to ensure P-3 efforts are adequately funded to ensure effective implementation.</p>
Administrator Effectiveness	<p>Visible Leadership Administrators demonstrate that P-3 is a priority to both internal and external stakeholders.</p> <p>Foster Teamwork Administrators foster teamwork among individuals, especially teachers, at all levels within the P-3 work.</p> <p>Instructional Leadership Administrators are effective instructional leaders, P-3.</p>
Teacher Effectiveness	<p>Focus on Instruction Teachers’ professional education and development are focused on effectively supporting children’s language/reading, math, social, and emotional development; and on differentiating instruction for all young learners.</p> <p>Visible Practice Observations of classroom practices are regularly used to assess and improve teachers’ effectiveness in creating high-quality instructional, social, and emotional climates.</p> <p>Work as Teams Teachers work as teams, both horizontally and vertically, to improve instruction and effectiveness in the classroom.</p>
Instructional Tools	<p>Standards Meaningful, rigorous, and aligned standards are used to articulate what children are expected to learn.</p> <p>Curricula</p>

	<p>Curricula that are balanced, intentional, relevant, and developmental are selected and implemented.</p> <p>Assessments</p> <p>A comprehensive assessment system that includes diagnostic, formative, and summative tools is used to understand students’ progress.</p>
Learning Environment	<p>Culturally Inclusive</p> <p>Learning environments are welcoming and reflect the community of children and their families, home communities, cultures, and languages.</p> <p>Promote Relationships</p> <p>Learning environments provide a climate that promotes positive interactions and supportive relationships for children and adults.</p> <p>Structured to Support Diverse Learners</p> <p>Learning environments are organized and provided with resources to support a wide range of development, abilities, and interests.</p>
Data-Driven Improvement	<p>Child-based Data</p> <p>Data from child-based assessments are used to identify achievement gaps and to drive instructional improvement.</p> <p>School/Program-based Data</p> <p>Other meaningful data markers (e.g., classroom observations, student attendance, family engagement) are used to identify areas for improvement and to realign resources to support P-3 efforts.</p>
Engaged Families	<p>Core Priority</p> <p>Teachers, administrators, and all staff in schools and programs understand the importance of, and employ strategies for, engaging families.</p> <p>Two-Way Communication</p> <p>Schools and programs establish regular two-way communication approaches to share data with, and to learn from, families.</p> <p>Shared Leadership/Decision-making</p> <p>Families, teachers, and administrators share decision-making for student success.</p>
Community and Pathways	<p>Access and Continuity of Services</p> <p>Children’s access to high quality learning opportunities is expanded and extended, especially for children most at risk.</p> <p>P-3 Pathways</p> <p>Policies and practices are in place that focus on ensuring a stable pathway of high-quality learning opportunities for every child from PreK through 3rd grade.</p>

Appendix D. NIEER Preschool Quality Standards

For more than a decade, the National Institute for Early Education Research (NIEER) at Rutgers University has published a Quality Standards Checklist against which it rates state progress for “preschool programs.” For NIEER, state-funded preschool programs are included when they conform to the following parameters (cited directly from the 2015 NIEER Preschool Annual Report):

- The initiative is funded, controlled, and directed by the state.
- The initiative serves children of preschool age, usually 3 and/or 4. Although initiatives in some states serve broader age ranges, programs that serve only infants and toddlers are excluded. The program must reach at least one percent of the 3- or 4-year-old population in the state to be included.
- Early childhood education is the primary focus of the initiative. This does not exclude programs that offer parent education but does exclude programs that mainly focus on parent education. Programs that focus on parent work status or programs where child eligibility is tied to work status are also excluded.
- The initiative offers a group learning experience to children at least two days per week.
- State-funded preschool education initiatives must be distinct from the state’s system for subsidized child care. However, preschool initiatives may be coordinated and integrated with the subsidy system for child care.
- The initiative is not primarily designed to serve children with disabilities, but services may be offered to children with disabilities.
- State supplements to the federal Head Start program are considered to constitute de facto state preschool programs if they substantially expand the number of children served, and if the state assumes some administrative responsibility for the program. State supplements to fund quality improvements, extended days, or other program enhancements or to fund expanded enrollment only minimally are not considered equivalent to a state preschool program. (NIEER, 2015, p. 39)

“The Quality Standards Checklist represents a set of minimum criteria, established by state policy, needed to ensure the effectiveness of preschool education programs, especially when serving children who are at risk for school failure. While the checklist is not intended to be an exhaustive inventory of all the features of a high-quality program, each of these research-based standards is essential. Meeting all 10 standards does not necessarily guarantee that a program is of high quality, but no state’s prekindergarten policies should be considered satisfactory unless all 10 benchmarks are met. Although programs may routinely engage in practices meeting criteria for quality standards, credit is given only when the practices are explicitly required in state policy.” (NIEER, 2015, p. 42)

In 2016, NIEER updated their standards.^{clxxxix} The following table highlights both the previous standards (of which NC met all 10) and the updated 2016 standards. NC does not yet meet one of the updated standards: the state does not provide the required professional development for assistant teachers.

Policy Element	2015 Standards	Updated 2016 Standards
Early learning standards	National Education Goals Panel content areas covered by state learning standards for preschool-age children must be comprehensive	Comprehensive Early Learning and Development Standards that are horizontally and vertically aligned, supported, and culturally sensitive
Curriculum	<i>None</i>	Supports for Curriculum Implementation
Teacher degree	Lead teacher must have a BA, at minimum	Lead teacher must have a BA, at minimum
Teacher specialized training	Lead teacher must have specialized training in a pre-K area	Lead teacher must have specialized training in a pre-K area
Assistant teacher degree	Assistant teacher must have a CDA or equivalent, at minimum	Assistant teacher must have a CDA or equivalent, at minimum
Teacher in-service	Teacher must receive at least 15 hours/year of in-service professional development and training	15 hours/year of professional development, individualized professional development plans, and coaching for lead and assistant teachers
Maximum class size	Maximum class size: 20	Maximum class size: 20
Staff-child ratio	Staff-child ratio: 1:10	Staff-child ratio: 1:10
Screening/referral and support services	Screenings and referrals for vision, hearing, and health must be required; at least one additional support service must be provided to families	Screenings and referrals for vision, hearing, and health must be required
Meals	At least one meal must be required daily	<i>There is not a Meals standard included in the updated standards</i>
Monitoring	Site visits must be used to demonstrate ongoing adherence to state program standards	Continuous Quality Improvement System

Appendix E. North Carolina K-3 Quality, from Education Commission of the States

Methodology: This information was collected by the Education Commission of the States from state statutes, rules and regulations. A profile was sent to each state for review and modification, as needed. Text is cited directly from the source document.

Basic Requirements	
Does the state require full-day kindergarten?	Yes, full-day kindergarten is required.
How many hours are required for grades K-3?	1,025 hours per year for all grades (~5.5 hours/day).
What are the teacher-to-student ratio requirements for grades K-3?	K-3 1:18
School Readiness and Transitions	
Are kindergarten entrance assessments required?	All students entering kindergarten must be administered a developmental screening of early language, literacy, and math skills within 30 days of enrollment. All students entering kindergarten must complete a KEA within 60 days of enrollment. The developmental screening instrument may be composed of subsections of the KEA.
What are states required to do with the results of the KEA?	The results of both the KEA and the developmental screening tests are used to inform instructional strategies, efforts to reduce the achievement gap at kindergarten entry, and continuous improvement of the early childhood system. Assessment results are entered in the state longitudinal data system.
What do states have in place to guide the pre-kindergarten to kindergarten transition process?	Not specified in statute, rules or regulations.
Does the state have a statutory definition of school readiness?	Not specified in statute, rules or regulations.

<p>What do states use their definition of school readiness to inform?</p>	<p>While the term “school readiness” is not explicitly defined, kindergarten entrance assessments and developmental screenings must include the five essential domains of school readiness: language and literacy development, cognition and general knowledge, approaches toward learning, physical well-being and motor development, and social and emotional development.</p>
<p>What are the re-classification procedures for ELL students?</p>	<p>School districts determine the content knowledge and language skills necessary to be successful in a mainstream classroom. ELLs' English speaking, listening, and literacy skills and content area knowledge are assessed using multiple instruments and teacher judgment. ELLs must not stay in alternative language programs longer than necessary. After leaving an alternative language program, students' progress is monitored for a minimum of six months and additional academic and English language support must be provided if the students begin to have difficulty.</p>
<p>Assessment, Intervention and Retention</p>	
<p>Are assessments required in grades K-3?</p>	<p>K-3 reading assessments are required.</p>
<p>What do the results of K-3 assessments inform?</p>	<p>The results of K-3 assessments are used to assess progress, diagnose difficulties, and inform instruction and remediation. Assessment results are entered in the state longitudinal data system.</p>
<p>Are there interventions available beginning in kindergarten?</p>	<p>Interventions are available for K-3 students.</p>
<p>What are the interventions available for students in grades K-3?</p>	<p>Intervention options include: reading camps, supplemental instruction, extended day programs, and individual or group tutoring.</p>
<p>Is there a third-grade retention policy?</p>	<p>Third grade retention is required with good cause exemptions. A midyear promotion policy exists for any student who demonstrates reading proficiency by November 1.</p>

Instructional Quality	
What are the requirements for teacher training or professional development in reading?	<p>Teacher preparation: Elementary education teacher education programs must include coursework in the teaching of reading.</p> <p>Elementary and special education general curriculum programs must include instruction in early literacy intervention strategies, including evidence-based assessment and diagnosis or reading difficulty.</p>
What ELL training or professional development is required of general classroom teachers?	Not specified in statute, rules or regulations.
Family Engagement	
For those states with pre-kindergarten to kindergarten transition guidance, is family engagement a requirement?	Not specified in statute, rules or regulations.
Do states require family engagement for the families of ELL students?	<p>Local education agencies are charged with promoting the involvement of parents of ELLs in the educational program of their children.</p> <p>Notices of school activities shall be provided in the home language, if possible.</p>
For those states with third grade retention policies, is parental input required?	Parental involvement is required, including monthly written reports on student progress and information sessions between teachers and parents.
Social-Emotional Learning	
Where is social-emotional learning emphasized in statute?	Social-emotional development is part of the kindergarten entrance assessment and is included as a domain of school readiness.

Appendix F. **K-3 Quality Standards, from the National Association of Elementary School Principals**

Text is cited directly from the source document.

Standard	Detail
Standard One: Embrace Early Childhood Learning	<ul style="list-style-type: none"> • Consider conception through the start of fourth grade a continuum for early learning • Engage the school community in understanding children’s early development and use that combined knowledge to strengthen learning throughout the school • Balance leadership and management roles to incorporate early childhood programs into the school’s culture and organizational structure • Articulate the value of early intervention to prevent later difficulties
Standard Two: Engage Families and Communities	<p>Principals encourage teachers to:</p> <ul style="list-style-type: none"> • Visit children’s homes before the beginning of the school year to meet the children and families • Create opportunities for families to visit the pre-K classroom before school begins • Encourage parents as pre-K children make their first transition into a school • Establish and maintain ongoing communication with all families • Reporting to parents on children’s experiences on a regular basis <p>Principals’ actions include:</p> <ul style="list-style-type: none"> • Acknowledge and support families as children’s first and most influential teachers • Provide early education experiences that are informed by young children’s cultural and community experience • Act as a bridge between schools and community-based supports for young children and their families • Build coalitions with community organizations to strengthen learning for children from birth to the start of fourth grade
Standard Three: Promote Appropriate Learning	<ul style="list-style-type: none"> • Promote environments that are developmentally- and age-appropriate, and address individual ways of learning • Create relationships that provide the foundation for children’s learning • Develop children’s social skills • Provide facilities and learning opportunities that promote children’s health and safety

<p>Standard Four: Ensure High-Quality Teaching</p>	<ul style="list-style-type: none"> • Foster young children’s eagerness to learn • Develop early literacy and early numeracy skills to provide a foundation for later learning • Provide ongoing professional development for the school community to build an eagerness to learn
<p>Standard Five: Use Multiple Assessments</p>	<ul style="list-style-type: none"> • Support teachers in using observation, records and portfolios of student work to guide students’ growth • Use data from assessments to identify learning barriers, design strategies to overcome them, plan new learning experiences and initiate discussions across grade levels • Share information about program effectiveness between school systems and other providers • Educate parents and report to them about their children’s development and individual progress

Appendix G. Wage Comparisons Across North Carolina Child Care Centers

The chart below, summarized from the 2015 North Carolina Child Care Association Workforce Report, presents the starting and highest wage for teachers and assistant teachers using the median salary scale in various kinds of early childhood settings in 2015.

Median Hourly Wages in North Carolina Centers (2015)				
Type of Setting	Teacher Level	2015 Starting Hourly Wage	Average Annual Salary	Percent Change 2011-2015
All Centers Statewide	Starting Teacher Wage	\$10.00	\$20,000	4.8%
	Highest Teacher Wage	\$12.50	\$25,000	4.9%
	Starting Asst. Teacher	\$9.00	\$16,000	6.1%
	Highest Asst. Teacher	\$10.00	\$20,000	-0.6%
Centers with NC Pre-K Classrooms	Starting Teacher Wage	\$15.00	\$30,000	5.2%
	Highest Teacher Wage	\$21.31	\$40,000+	-4.2%
	Starting Asst. Teacher	\$11.25	\$22,500+	1.2%
	Highest Asst. Teacher	\$15.16	\$30,000+	19.3%
Centers without NC Pre-K Classrooms	Starting Teacher Wage	\$9.00	\$18,000	-0.1%
	Highest Teacher Wage	\$11.00	\$22,000	1.3%
	Starting Asst. Teacher	\$8.00	\$16,000	-5.7%
	Highest Asst. Teacher	\$9.50	\$19,500	2.5%

Appendix H. Sources of Data for North Carolina Program and Outcomes Studies

Head Start Outcomes Data. Data reported for the 2014-2015 school year show that 80 to 90 percent of children enrolled in North Carolina Head Start programs “met or exceeded widely-held expectations” for young children’s development at the end of the school year in the following domains: health, language, literacy, social/emotional, mathematics and logic/reasoning. Performance on the remaining four domains -- approaches to learning, science, creative arts and social studies – had “significantly lower scores” at the beginning and end of the year.^{cxv}

NC Pre-K Outcomes Data. In 2014, the Frank Porter Graham Child Development Institute (FPG) conducted a study of children’s outcomes and program quality in the 2012-2013 NC Pre-K program.^{cxvi} Child outcomes were assessed in “...language and literacy skills (receptive vocabulary, expressive vocabulary, letter-word identification, phonological awareness), math skills (math problem-solving, counting), general knowledge (basic self-knowledge), and behavior skills (social skills).”^{cxvii}

While three quarters of the children enrolled in the NC Pre-K program lived in families with incomes at or below 130 percent of the Federal Poverty Level, these students demonstrated “...significant growth during their pre-k year across all domains of learning, with scores generally in the expected range for their age group.” The study found that most program characteristics were consistently in accord with “good quality standards.” Teacher qualifications, however, improved over time. Classroom quality scores were generally “...in the medium to high quality range, with very few scoring in the low-quality range.” Teacher-child instructional interactions varied with high scores for emotional support, middle range scores for classroom organization, and low range scores for instructional support.^{cxviii}

North Carolina Kindergarten Entry Assessment (KEA) Data. The North Carolina KEA was piloted in a group of kindergarten classrooms beginning in the 2014-2015 school year.^{cxix} As of now, these data are not aggregated and reported at the population level.

North Carolina School Performance Data. Data on student performance for each school in every North Carolina school district are released publicly and are available online. These data are based on unique student data aggregated to the school level. School reports show the percentages of students who attain each of five levels of academic accomplishment. Levels four and five represent the achievement of expected grade-specific academic performance.^{cxv} The most recent data was released for the 2015-2016 school year in the form of School Report Cards.^{cxvi} School Report Cards are available to the public online at the NC Department of Public Instruction.^{cxvii}

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