



(Mis)Alignment of instructional policy supports in Pre-K and kindergarten: Evidence from rural districts in North Carolina



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ABSTRACT

Over the past few decades, instructional policy supports — encompassing standards, curricula, and assessments — have featured centrally in the education reform movement. So, too, have efforts to align them. In this article, we conduct interviews with local educators with responsibility for early education about the alignment of instructional supports in Pre-K and kindergarten. Perceptions among study participants indicate that the degree of alignment among standards, curricula, and assessments is stronger within Pre-K and kindergarten than it is between them. Reported reasons for weak alignment between Pre-K and kindergarten include a debate over the purposes of early childhood education, institutional silos, and procedures that disrupt data sharing and transition practices. We consider what participants identify as the barriers to alignment mean for the development of policies aimed at lifting them.

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1. Introduction

High-quality pre-kindergarten programs (Pre-K) have the potential to increase children's readiness for school (Barnett et al., 2018; Gormley, 2008; Yoshikawa et al., 2013), narrow achievement gaps (Bassok, 2010; Magnuson & Waldfogel, 2005), and yield dividends to society through lower incarceration rates and health costs (Heckman, 2006; Heckman, Moon, Pinto, Savelyev, & Yavitz, 2010). The most promising findings come from a set of small experiments of intensive interventions in the 1960s and 70s, including the Perry Preschool Program and the Carolina Abecedarian Project in North Carolina (Barnett, 2011). In part as a response to the impacts of these promising model programs, policymakers have funded Pre-K programs across the nation. According to the National Institute for Early Education Research, today there are publicly-funded Pre-K programs in 43 states and the District of Columbia (Friedman-Krauss et al., 2019). But, the transition from small, model projects to large-scale programs has frequently yielded less positive results (Dodge, Bai, Ladd, & Muschkin, 2017). In many cases, scaled-up Pre-K programs demonstrate initial positive impacts on child outcomes,

but the impacts do not reliably persist into elementary school — representing what researchers call the *Pre-K fade out effect* (Bailey, Duncan, Odgers, & Yu, 2017; Duncan & Magnuson, 2013; Farran & Lipsey, 2015; Hill, Gormley, & Adelstein, 2015; Magnuson, Ruhm, & Waldfogel, 2007; Phillips et al., 2017; Schweinhart, Barnes, & Weikhart, 1993).

In response to the discrepancy between what we know Pre-K *has the potential to do* and what it *is doing* at scale, researchers have been working to identify specific structures, components, and practices that promote high-quality Pre-K. One recent focus area is alignment (Kauerz & Coffman, 2013; McCormick, Mattered, & Hsueh, 2019). A few states and districts, for example, have named task forces or councils charged with establishing a vision for a Pre-K through grade three or birth through grade three system of early education.¹ The argument is that aligned systems begin early and continue through the elementary school years, providing strong foundations for continued academic success (Childress, Denis, & Thomas, 2009; Marietta & Marietta, 2013; Marietta, 2010); they allow for the formation of comprehensive integrated approaches and policies targeting the birth through 3rd grade continuum (Jacobson, 2014).

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¹ North Carolina, for example, established the B-3 Interagency Council in 2017. Source: www.b-3council.nc.gov.

Of interest in these discussions is the alignment of *instructional supports* (Center on Enhancing Early Learning Outcomes et al., 2017), which include content standards, curricula, and assessments:

- Content standards are lists of the knowledge and skills a child should demonstrate;
- Curricula are the specific instructional materials and subjects that students are exposed to; and
- Assessments capture the extent to which students have acquired knowledge and skills.

This combination of standards, curricula, and assessments is underpinned by a logic positing that teachers, under a standards-based accountability framework, will adjust their instruction to the standards and assessments, and student learning will improve (e.g., Clune, 1993; Smith & O'Day, 1991).

Spurred on in part by the Race to the Top-Early Learning Challenge (RTT-ELC), states and districts across the nation have been working to create developmentally-appropriate early learning standards that are aligned with assessments and curricula; this work involves concrete steps agencies are taking to encourage integration across grades and sectors. They are doing so with guidance from the National Head Start Association, the Council of Chief State Schools Officers, and other groups pressing to identify ways to integrate early learning more fully into state accountability plans and school improvement systems. These groups have published toolkits “designed to help bridge the gap that too often exists between state policymakers involved in early childhood and K-12 education policy” (Center on Enhancing Early Learning Outcomes et al., 2017, p. 2); the toolkits include action steps for states wishing to incorporate early learning into their ESSA plans (e.g., National Head Start Association et al., 2017).

It is in this context that we investigate what early childhood educators working at state and local levels think about the alignment of standards, curricula, and assessments in North Carolina's Pre-K program (NC Pre-K) and kindergarten. We also investigate what factors these educators think influence alignment of instructional supports, including transition practices, for example. To do so, we conceptualize alignment along two dimensions. Specifically, we examine how participants describe the ways standards, curricula, and assessments align with one another *within* the Pre-K and kindergarten years, a concept called *horizontal alignment*. We also explore *vertical alignment*, which describes how these instructional supports in Pre-K align with those that govern kindergarten. These are the research questions that guide our work: To what extent are instructional supports in Pre-K and kindergarten horizontally and vertically aligned, according to local and state educators with responsibility for early education? And, to what reasons do these educators attribute any misalignment?

1.1. Why study alignment?: The study's contribution

Understanding levels of alignment and educators' perceptions of alignment are important for multiple reasons. First, as researchers working in the early childhood education policy space, we regularly confront a focus on alignment among decisionmakers. In the main, they argue that alignment is both a goal we should target² and one

that has not (yet) been achieved. Specifically, there is, in our experience, a “gut sense” among policymakers that something should be done to correct “the instructional distance” between Prekindergarten programs and early elementary school. Yet, when we look in the literature, we find a few position pieces (e.g., Bogard and Takanishi, 2005; Kagan, Carroll, Comer, & Scott-Little, 2006) but little in the way of empirical studies that document (or debunk) the “distance.” With this study, we aim to begin to correct that.

Second, by using data to better understand claims around instructional distance, the field will be better positioned to design studies that examine the extent to which any misalignment may contribute to fade-out. For example, understanding the extent to which Pre-K programs differ in terms of their alignment with kindergarten may help explain variation in the persistence of program impacts into elementary school and beyond.

Third, our study opens a conversation about ways researchers might measure alignment. If alignment will, as we expect, continue to occupy a central position in policy discussions around early childhood education, it is critical that we – together as a professional community – recognize its complexity and begin to develop ways to measure it. There are at least two related issues to keep in mind here. First, in doing this work, we need to wrestle with the federated system of education in the U.S., acknowledging the agency that actors in various levels of the system (e.g., state, district) have in setting and implementing policy, including initiatives aimed at instructional alignment. In this article, we highlight the voices of local participants. We do so for both conceptual and empirical reasons. Conceptually, we acknowledge the overwhelming evidence that “place” or local context is critical for implementation and program success (e.g., McLaughlin, 1991; Honig, 2006). Indeed, the key lesson from the third wave of implementation research in education is that program effectiveness, like its implementability, is the product of interactions between policies, people, and places—in short, the local setting in which the program is tried (Cohen-Vogel et al., 2015; Honig, 2006; Means & Penuel, 2005). Empirically, we wanted to try to begin to capture both the impressions local officials possess about the alignment of state-level policies related to instruction as well as what they at the local level may be doing to further close the instructional distance. With this information, we hoped to be in a position in our future work to detect the conditions and contexts that enable efforts to align instructional supports.

Second and closely related, we, as early childhood and educational researchers, need to develop measures for both observed and perceived alignment. Our study is not one of observed alignment; we do not employ measures of alignment among the instructional supports through, for example, a technical crosswalk analysis of an adopted curriculum against the content standards. While measuring observed alignment is beyond the scope of this study, we do share our ideas about how future studies might begin this work in the article's discussion. In the current study, we look instead at reported alignment and, in so doing, provide insights into how school officials and practitioners view the degree of alignment in their own jurisdictions. By looking at educators' reports or perceptions of alignment among standards, curricula, and assessments, we gain an understanding of whether those working proximately to early education share the view of some federal and state policymakers that there is a considerable distance between the instructional supports for children in Pre-K and those they receive in Kindergarten. Knowing what practicing early education leaders at the

² While it is not our purpose here to debate the wisdom of pursuing instructional alignment between Pre-K and Kindergarten, it is worth pointing out that the idea that alignment is desirable is not shared universally. Some warn that alignment efforts could suppress a focus on social development in Pre-K (Heckman, Krueger, & Friedman, 2004; Stipek, 2006). Others point out that there is currently little evidence that Pre-K to Kindergarten alignment fosters stronger early learning than does expos-

ing children to high quality Pre-K and, subsequently, to high quality Kindergarten. Though beyond the purpose of this article, future studies might be designed to compare the impact of PreK to Kindergarten-aligned instructional supports against a condition wherein children are exposed to high quality Pre-K and Kindergarten settings, absent intentional strategies to align these two phases of early education.

district and school levels think about how closely aligned standards, curricula and assessments are both within and among Pre-K and Kindergarten will be informative, if – as recent policy activities (e.g., the establishment of Birth to Grade 3 taskforces) suggest – officials move ahead with initiatives aimed at bringing instructional supports more into alignment. As implementation scientists know, understanding the beliefs of front-line implementers is critical for planning how to target critical resources to best encourage program uptake (e.g., Honig, 2006; McLaughlin, 1991). Relatedly, identifying the reasons practicing experts believe are responsible for any (mis)alignment in the systems can help implementation planners identify potential barriers.

Finally, in addition to its empirical contributions, our study continues to generate conceptual clarity around the concepts of alignment. Specifically, we advance the idea that alignment in education is best understood and measured as a dual construct, with both a horizontal and vertical dimension. While some early education researchers have adopted horizontal and vertical alignment terminology (Howard, 2010; Kagan & Scott-Little, 2004), many still use alignment as a singular construct or do not consider horizontal and vertical alignment together as a dual construct. This dual conceptualization is an improvement upon generalized notions of alignment, which in the aggregate fail to recognize nuances in the ways alignment can be manifest, most notably perhaps the distinction within and between grades. Improving understandings around alignment conceptually will set the groundwork for measurement experts to better study it.

In the sections that follow, we detail the conceptual model of alignment as well as the theoretical logic that underpins the current push to align instructional supports. Next, we provide background on the early education context in our sampled North Carolina districts. We then detail the methods for this study, including data collection and analysis procedures. After presenting our findings, we discuss them in relation to the existing theoretical and empirical literature base. We conclude with a discussion of the limitations of our research and how future inquiry can help to extend the knowledge base around reform efforts aimed at aligning early learning standards, assessments, and curricula.

1.2. The case for horizontal and vertical alignment: Advancing conceptual understanding

Coherence is a term used by policy researchers to refer to policies or policy sets that link together to direct a system (e.g., education system) as a whole. Coherence means ‘having the quality of holding together as a firm mass’ and being ‘logically consistent.’ Coherent policies, therefore, are congruent, send the same messages, and avoid contradictions (Honig & Hatch, 2004). As applied to education, coherent policies establish goals about what students should know and be able to do and then coordinate other policies that link to these goals (Fuhrman, 1993). They place classroom instruction at the epicenter of student learning and work to ensure that the surrounding system is set up in ways that enhance that instruction (Darling-Hammond et al., 2009; Hill, 2007; Kazemi & Hubbard, 2008).

Policy coherence takes two dominant forms. Horizontal alignment refers to the degree of alignment between policies *within* a grade level. Vertical alignment refers to the degree of alignment among policies *across* grade levels. We discuss each in turn below.

Animating from the standards-based reform movement, the guiding theory behind the push for *horizontally aligning* instructional supports posits that the content of teachers’ instruction varies considerably, and standards are necessary to provide an “instructional target” (Polikoff, 2012, p. 343) (see also Cohen-Vogel, 2005; Mehta, 2013). According to this thinking, the content targets of the standards are reinforced through state assessments,

which provide extrinsic incentives for teachers to cover the content specified therein (Firestone, Schorr, & Monfils, 2004; Cohen-Vogel, 2011; Guskey, 2003; Lyons & Algozzine, 2006; Stecher & Barron, 2001). According to Polikoff (2012), instructional alignment should increase when content standards and assessments are themselves closely aligned and mutually reinforcing. In short, “providing teachers with more consistent messages through content standards and aligned assessments and curriculum materials will lead them to align their instruction with the standards, and student knowledge of standards content will improve” (Polikoff & Porter, 2014, p. 401).

While the push for horizontally aligned instructional supports has, arguably, been most pronounced in the K-12 sphere, the same initiatives have made headway into the Pre-K space. Over the past fifteen years, increased public investment in Pre-K, an expanded involvement of public schools in education for 3- and 4-year-olds, and some National Research Council reports have, according to the National Association for the Education of Young Children (2002), “stimulated a rapid expansion of the standards movement into early education” (p.2). In this time, the Head Start Bureau developed its Child Outcomes Framework, describing learning expectations in each of eight domains; professional associations established content standards in early mathematics and literacy; and national reports called for the creation and implementation of content standards, performance standards, and measures of child outcomes as part of a broader effort to improve teaching and learning in the early years, and most states have followed suit. There have been additional efforts to build segues with standards-based accountability structures. In Washington, D.C., for example, the district’s ESSA plan includes linking early learning performance metrics and a public reporting system that includes Pre-K (Center on Enhancing Early Learning Outcomes et al., 2017).

The premise behind the push to *vertically align* instructional supports is that “designating what students should know and be able to do at the completion of each grade level or course equips educators to set targets by which students climb a ladder of ever-increasing demand and proficiency toward college and career readiness” (Valdez & Marshall, 2014, p. 47). Here, the focus is on specifying an articulated pathway between grade levels to reduce redundancies, fill content gaps, and scaffold opportunities to learn. The idea of vertical alignment situates standards as a key component of the high school completion agenda, which assumes that specific and age-appropriate instructional targets must be set and tested to develop over time the knowledge and skills expected of students as they enter college or the workforce.

Vertical alignment can be threatened when grade level progressions span a change in sector. The K-12 system, for example, is generally governed by a local superintendent and school board with responsibility for setting and implementing policy across the K-12 spectrum. But, after grade 12, students may progress into the higher education system, a system with different governing boards and norms that value faculty expertise and control over the curriculum. These cross-sector junctures make efforts to coordinate difficult. Kirst and Venezia (2001), for example, point to low college graduation rates and high rates of remedial course-taking as the outcomes of ‘disjuncture.’ They found, for example, that high school curricula and graduation standards do not regularly match college admissions requirements, many state data systems do not track students after high school graduation, and accountability structures do not typically extend into the college years. More than a decade later, Perna and Armijo (2014) argued that the continuing high rates of academic remediation among college students suggest that many states have still not aligned high school and college curricular standards and assessments.

Another cross-sector disjuncture occurs between the Pre-kindergarten and K-12 systems.

At the federal level, most public programs providing education for four-year-olds are administered by the Department of Health and Human Services while education for five- to eighteen-year-olds runs out of the Department of Education. This administrative arrangement is mirrored in many of the states and local governments with publicly-funded early childhood programs.

New efforts to overcome disjunctures and vertically align instructional supports attempt to cut across the Pre-K, K-12, and higher education sectors. Approaches to vertical alignment bring together educators to tackle standards and curriculum issues from the “two sides” of the K-12 system—Pre-K and postsecondary. On the Pre-K side, alignment advocates, along with the federal government through its competitions for funded research (e.g., Striving Readers program), are pushing states to adopt instructional programs that set forth a progression of age-appropriate standards and approaches for children birth through age five that align with evidence-based (pre)literacy strategies for students from kindergarten to fifth grade (Kauerz & Coffman, 2013; USDOE, 2017). The goal is a developmental continuum of reading and writing that includes approaches teachers can use to help support scaffolding across age and grade-level bands. On the higher education side, the so-called K-16 movement³ in the United States works to better integrate systems of K-12 and postsecondary education and create aligned policy and practice in the areas of assessment, graduation requirements, and admissions policies.

The goal of these alignment efforts seems to be, in the words of Davis and Hoffman (2008), “a seamless educational network from pre-kindergarten through the 16th ‘grade’” (p. 123). So, how far have we come? In the sections that follow, we examine the degree to which instructional supports in Pre-K and kindergarten are reported by rural officials responsible for early education at the local level as being horizontally and vertically aligned. A system’s instructional supports (i.e., standards, curricula, assessments) would be said to be horizontally aligned if participants viewed content standards as being covered in the curricula, tested on the assessments, and used to plan professional development. A system would be said to be vertically aligned if the instructional supports in kindergarten built upon those governing Pre-K.

2. Background: The North Carolina early learning context

As our purpose here involves building understanding around the extent of reported alignment between NC Pre-K and policies that govern kindergarten, we provide a background on the preschool and kindergarten programs in North Carolina. In the methods section, we describe the sampled school districts in detail. The information is intended to help readers interpret whether and how our findings can be applied to the settings in which they work.

North Carolina became a recognized leader in early childhood policy in the 1990s with its Smart Start Initiative. In 1993, Smart Start began as a demonstration program in 18 of the state’s 100 counties with the goal of ensuring that all children ages 0–5 were healthy and prepared for school. Smart Start is supported by state funds and private donations and begins providing children with quality childcare, health care, and family support services at birth. By 1999, the program had expanded to all 100 counties

³ The movement erupted in response to what the National Conference of State Legislatures (NCSL) and others called a “crisis” in American higher education: the system was not equipped to prepare workers for the new knowledge economy (Kirsch, Braun, Yamamoto, & Sum, 2007; NCSL, 2006; United States Department of Education (USDOE, 2006). It was given a boost in 2007 when Congress passed the America COMPETES Act. Among other things, the act authorized federal grants to states for those states to better align high school graduation requirements with the knowledge and skills needed to succeed in college and to establish statewide P-16 education data systems (H.R. 2272, 2007).

(Ladd, Muschkin, & Dodge, 2014). Designed to supplement Smart Start with high-quality academic skills programs for at-risk four-year-olds, a second program, More at Four, was adopted by the legislature in 2001. “At risk” is defined in the program as having a developmental delay/learning disability, a chronic health problem, limited English proficiency, or a family income less than or equal to 75% of the state’s median.⁴ More at Four was renamed NC Pre-K in 2011 and in the same year moved from the state’s Department of Public Instruction (DPI) to the Department of Health and Human Services (DHHS). The state received a Race to the Top Early Learning Challenge grant which provided \$69.9 million from 2012 through 2016 for enhanced professional development and technical assistance opportunities, new degree programs and online training courses in early learning, and a validation study of the state’s program quality rating system, among other projects. Today, NC Pre-K serves 25% of all four-year-olds in the state (North Carolina Department of Health and Human Services, 2017).

K-12 enrollment in North Carolina is 1,552,638, including traditional public and charter schools. A larger share of K-12 funding comes from the state (about 62%) in North Carolina than it does in 41 other states (NCDPI, 2015). Over the past 25 years, the state has provided additional funds for the state’s lowest wealth and low-enrollment LEAs. Even so, investments in North Carolina schools still vary dramatically by county. The state is one of 19 recipients of federal Race to the Top (RtT) grants which brought almost \$400 million to North Carolina’s K-12 system over four years. The funds were to be used for the adoption of internationally benchmarked standards and assessments; recruiting, developing, retaining and rewarding effective teachers and principals; building data systems that measure student success and inform teachers and principals regarding how they can improve their practices; and turning around the state’s lowest-performing schools (United States Department of Education (USDOE, 2009; NCDPI, 2015).

2.1. NC Pre-K: Standards, curriculum, and assessments

The NC Pre-K program is provided in private licensed childcare facilities, Head Start centers, and public schools. Approximately 50% of program slots are provided in public school settings (Peisner-Feinberg & Schaaf, 2008). All providers must meet state-determined program standards,⁵ and private facilities must earn four- or five-star high-quality ratings under the state’s child care star-rated licensing system (Barnett et al., 2015).

Programs must adhere to the *state’s content standards*—the North Carolina Foundations for Early Learning and Development (Foundations). The Foundations, developed from NEGP Essential Domains of School Readiness, focus on five developmental domains of early childhood education: (1) approaches to play and learning, (2) emotional and social development, (3) health and physical development, (4) language development and communication, and (5) cognitive development (North Carolina DCDEE, 2016).

The program guidelines for the 2016–2017 school year contain a list of 15 approved curricula for use in NC Pre-K classrooms. Curricula approvals are obtained from the NC Child Care Commission, a 17-member body appointed by the governor and legislature that includes parents, academics, and public citizens. The Commission employs a rubric with three main criteria: each curriculum must be comprehensive (addresses all five domains of the Foundations), evidence-based (includes a theoretical and/or research justifica-

⁴ Children whose parents are on active military-duty are granted automatic eligibility (Division of Child Development and Early Education, NC Department of Health and Human Services, n.d.).

⁵ For example, NC Pre-K sites must operate for a minimum of 6.5 h a day for 10 months of instructional time.

tion for content), and aligned with the Foundations. The 2015–2016 statewide NC Pre-K evaluation reported that 88.2 percent of all programs used the Creative Curriculum as their primary curriculum (Peisner-Feinberg et al., 2017).

The NC Child Care Commission also has approved a list of 11 formative assessments for NC Pre-K sites. Sites are required by legislation to conduct ongoing formative assessments to inform teacher's instruction and to monitor children's growth and development, though the state does not specify how many times a child should be assessed during the year. In 2015–16, 90.6% of programs reported using the Teaching Strategies Gold formative assessment system (Peisner-Feinberg et al., 2017). Additionally, sites must use one of four Commission-approved developmental screeners to "identify children who should be referred for further evaluation and testing based on concerns in one or more developmental domains" (North Carolina DCDEE, 2016, p. 5). Every child in NC Pre-K, except those who already have an Individualized Education Program (IEP), must be screened either six months before the school year begins or within 90 days after. Sites administrators are required to review all results and share them with families. The two most common developmental screeners are the Developmental Indicators for the Assessment of Learning and the Brigance screener (Peisner-Feinberg et al., 2017).

2.2. Kindergarten: Standards, curriculum, and assessments

In 2017–18, North Carolina's K–12 system served 107,162 kindergarten students in its traditional public schools. Kindergarten in North Carolina is universal but not compulsory. Children are eligible to enroll in kindergarten if they reach the age of 5 by August 31st of the year they seek to enroll. Kindergarten is part of the K–12 public school system that is administered by the state's Department of Public Instruction (NCDPI, n.d.).

The kindergarten standards come from the state's *Standard Course of Study* (SCS), which defines content standards for each grade in order to provide a uniform set of learning standards for every public school in North Carolina. The SCS was overhauled in the past few years, with new standards implemented for the first time in 2012–13. Currently, North Carolina's SCS consists of the Common Core State Standards in English language arts (ELA) and mathematics and the North Carolina Essential Standards in all other subjects, which include Arts Education, Healthful Living, Information and Technology, Science, and Social Studies (NCDPI, n.d.).

Local district leaders use the state standards to make decisions about the curriculum they deliver to students for every grade and subject; additionally, they may offer electives and coursework that are above and beyond the SCS content standards. There are no state-level curriculum requirements. As the state's K–12 Standards, Curriculum, and Instruction website notes, "Classroom instruction is a partnership between the state, which sets content standards in the Standard Course of Study, and local educators who determine which curriculum materials they will use to deliver instruction to reach the standards" (NCDPI, n.d.).

While individual districts and schools can select additional assessments in kindergarten, there are two required assessment programs from the state. The first is the Kindergarten Entry Assessment (KEA), which is a formative assessment administered by teachers in the first 60 days of kindergarten. Teachers rate children's readiness for school on construct progressions within each of the five domains of child development (approaches to learning, language development and communication, cognitive development, emotional and social development, and health and physical development). The KEA is the entry point for a broader K–3 formative assessment process that continually monitors children's development in the five domains of child development from kindergarten through third grade. The second state-required assessment in

kindergarten is mCLASS, which is a comprehensive K–3 assessment program intended to monitor children's progress toward reading proficiency in third grade. In kindergarten, students are assessed in the beginning, middle, and end of the year. Based on their performance, they may need to be progress monitored with more frequent testing (NCDPI, n.d.).

3. Methods

3.1. Sampling framework

Data were collected in six counties in North Carolina as part of a larger study of early learning. The larger study seeks to advance our understanding of the policies and practices that narrow the achievement gap and maintain early learning success as children move from preschool into elementary school and beyond. The work is part of the Early Learning Network, a network of six teams studying what is happening in early education programs around the nation and the extent to which children are successfully making the transition from Pre-K to elementary school.

Our larger study focuses on early education in rural North Carolina. A focus on rural early education is important for multiple reasons. Relatively little is understood about early learning and the transitions children make from preschool to elementary school in these contexts. And yet almost 9 million students attend rural schools, more than the enrollments of New York City, Chicago, Los Angeles and the next 75 largest school districts in the United States combined (The Rural School and Community Trust, 2017).

The achievement gap between low and higher-income students – a gap so large that students at the 90th percentile of the income distribution score about 1.3 standard deviations higher than students at the 10th percentile in both reading and mathematics – is manifest in rural–nonrural settings (Reardon, 2011). In the U.S., children in rural communities have higher poverty rates than their counterparts in urban/suburban communities, and, according to Vernon-Feagans et al. (2015), these gaps have grown since the Great Recession. Today, the majority of rural students in 23 states come from low-income families (Showalter et al., 2017). Compared to their more urban counterparts, rural children live in deeper poverty and live in poverty for longer periods of time (O'Hare, 2009; Lichter & Brown, 2011).

As a result, students who reside in rural areas exhibit lower levels of academic achievement and a higher likelihood of dropping out of high school than do their nonrural counterparts (e.g., Logan and Burdick-Will, 2017; Roscigno & Crowle, 2001). Achievement gaps in rural communities manifest early. At age three and at entry to school, the achievement between children from families meeting the federal poverty threshold and children from families above the threshold in rural low-wealth counties meet or exceed one standard deviation (Burchinal, et al., 2015; Vernon-Feagans, et al., 2013). In this context, understanding the policies and practices that affect learning as rural children move from preschool into elementary school should be a priority for all those working in early education.

From among all rural counties in North Carolina, we selected six using what is referred to as a preschool penetration analyses.⁶ To increase opportunities for research translation and aid readers in

⁶ Drawing from the work of Ladd et al. (2014), we calculated penetration as the estimated expenditures on the state-funded NC Pre-K program for each county, based on number of slots and reimbursement per slot, divided by the total number of kindergarten-aged children in the county in 2013–14. Three counties in our sample had a higher proportion of per-student expenditures on NC Pre-K ("high penetration" of publicly-funded pre-K), while the other three had a lower proportion of per-student expenditures on NC Pre-K ("low penetration" of publicly-funded pre-K). The Pre-K penetration-based selection was executed for reasons associated with

Table 1
Demographics by sampled county (counties were assigned pseudonyms).

	North Carolina	Allegrò County	Callenwood County	Gia County	Sundry County	Virgil County	Wyndfall County
Population							
Population estimate, 2016	10,146,788	159,688	72,243	59,031	63,124	44,244	124,150
Population/square mile, 2010	196	357	93	113	67	179	222
% under 5 years, 2016	6.0%	5.8%	4.8%	4.9%	6.4%	6.4%	6.7%
Race/ethnicity (2016)							
% Black/African American,	21.4%	19.3%	12.1%	31.5%	25.8%	50.5%	31.3%
% American Indian/Alaska Native	1.1%	0.4%	0.3%	0.4%	1.8%	0.2%	0.3%
% Asian	2.8%	1.5%	1.5%	0.6%	0.4%	0.4%	1.2%
% Native Hawaiian/Pac. Islander	1.1%	0.4%	0.3%	0.4%	1.8%	0.2%	0.3%
% Hispanic/Latino	9.2%	12.6%	11.9%	7.8%	18.9%	7.5%	11.5%
% White, Non-Hispanic	63.5%	64.6%	72.3%	58.2%	51.5%	40.2%	53.8%
Education, 2009–2013							
% High School or higher, 25+	84.9%	83.0%	85.8%	81.1%	75.0%	75.6%	81.7%
% Bachelor's or higher, 25+	27.3%	21.7%	36.4%	16.4%	12.6%	11.4%	16.4%
Income and poverty, 2009–2013							
Med. household income (2013 dollars)	\$46,334	\$43,043	\$57,091	\$49,852	\$36,496	\$34,987	\$41,731
Per capita annual income (2013 dollars)	\$25,284	\$23,166	\$31,175	\$22,295	\$19,479	\$17,905	\$21,557
% in poverty, 2015	17.9%	18.9%	11.6%	16.0%	21.4%	24.6%	18.4%
% in civilian labor force, 16+	62.5%	63.6%	60.8%	57.4%	62.2%	56.7%	64.2%
School district demographics							
K–12 enrollment, 2014–15	73,756	22,706	8,372	8,174	8,613	6,588	19,303
Received supplemental funds, 2014–15	N/A	No	No	Yes	Yes	Yes	Yes
Total supplemental funds received, 2014–15	N/A	N/A	N/A	\$472.95	\$524.52	\$513.17	\$366.48

Source: U.S. Bureau of the Census and North Carolina Department of Public Instruction.

interpreting the applicability of our findings to their contexts, we describe our sampled counties and their LEAs below. Demographic information for the sampled counties is summarized in Table 1. County names were given pseudonyms to protect the confidentiality of participants. Four of the six counties had smaller populations per square mile than the statewide average. The percentages of the population identifying as Hispanic and African American exceeded the statewide averages in four of the six counties. Postsecondary educational attainment and per capita annual income was lower than the statewide average in five of the six counties.

The school districts in the six sampled counties are county-wide. Together, the Local Education Agencies (LEAs) in the six counties enrolled almost 74,000 students in K–12 in 2015. The smallest LEA enrolled approximately 6500 students and the largest enrolled approximately 23,000 students. In 2014–15, average per pupil spending (PPS) in the state was \$5722. Several of the LEAs in our sample are among the least wealthy in the state. Four of the six LEAs represented in this study received supplemental funding from the state because their ability to generate local revenue is below the state average. Of the four LEAs receiving supplemental funds from the state, Sundry received the most (\$525), which is the eighth highest in the state (NCDPI, 2015).

3.2. Data collection

Data analyzed in this study were collected during the Fall of the 2016–17 and 2017–18 school years across the six rural counties. The results provide a broad perspective of the perceptions of local practitioners related to instructional supports. Specifically, we conducted semi-structured interviews with 51 county/school district administrators with responsibility for early education. We interviewed both school district and county officials in our local educator sample because, as described above, the NC Pre-K program in North Carolina has program sites both in public schools and outside them. Sites in public schools are administered by school districts, and sites

outside of public schools are administered by county Smart Start agencies. Therefore, study participants at the local level included Smart Start directors, district superintendents, and other county and school district personnel with responsibilities related to the administration of NC Pre-K. Snowball sampling that relied on first round participants' nominations of other local leaders in county and district offices added a handful of school principals identified as early childhood education experts.

We piloted the interview protocols with a district administrator in a county not included our sample and a program evaluator with intimate knowledge of the NC Pre-K program.

We asked each individual participant to report which instructional support materials were used in his or her county. We asked participants directly about their opinions concerning horizontal and vertical alignment of instructional supports components. An illustrative question about horizontal alignment is: "How well, in your opinion, does the adopted curriculum align with state content standards?" An illustrative question about vertical alignment is: "In your opinion, to what degree are the content standards for kindergarten aligned to the content standards for NC Pre-K?" We probed participants to justify their answers with specific examples. We further asked participants to report on the use of instructional support materials in professional development settings.

Our work was iterative. Throughout the data collection process, we interrogated the data in order to identify emerging concepts and avenues for further inquiry. This work was facilitated through the use of Post-Interaction Forms (PIFs), which data collectors completed after each interaction with a participant (see Miles & Huberman, 1994). After each field visit, the research team composed PIFs and compiled preliminary findings across counties, revised interview protocols, and designed further data collection activities.

3.3. Data analysis

Using directed content analysis (Patton, 2002), we began by analyzing the data categorically, first assigning basic descriptive codes for *content standards*, *curricula*, *assessments*, *horizontal alignment*, and *vertical alignment*. To further classify the data, queries

the larger study and county penetration does not appear to explain any variability in alignment reports across counties.

were generated that included the alignment components of our conceptual model (e.g., *standards-curricula horizontal alignment, standards vertical alignment*). Within each component category, we recorded the themes as they emerged from the data inductively (Miles & Huberman, 1994). We assigned codes to the themes, which included obstacles to alignment such as *an academic-developmental debate and institutional silos*.

Following Cohen-Vogel and Harrison (2013), we also engaged in summative content analysis of the interview data and documents (Hsieh & Shannon, 2005). As part of this analytic process, we constructed rubrics whereby researchers assigned ratings for the intensity with which our participants reported different types of horizontal and vertical alignment. The rubric elements evaluated by our team were developed collaboratively and included: Strong, Moderate, Weak, None, and Indeterminate/Insufficient Evidence. Ratings were given based on participants' reports of alignment among instructional elements. For example, in terms of horizontal alignment with Pre-K, the alignment of content standards and curricula was rated as strong if the participant reported that the curricula addressed the five domains of early childhood development laid out in North Carolina's content standards, or if the participant supplied other information that justified a "strong" rating. In terms of vertical alignment, the alignment of standards between Pre-K and kindergarten was rated as strong if the participant reported the standards logically built upon one another across the two grades in each of the domains covered by the standards, for example. Using these individual-level ratings, we created county-wide overall ratings that reflected the dominant narrative that emerged from each county.

Two members of the research team coded each interview transcript to promote reliability in the coding process. Separately, members of the coding pair analyzed and rated the same transcripts and documents on the basic descriptive codes, noting possible codes for the second level of analysis. Additionally, coders sought out and identified disconfirming evidence (Corbin & Strauss, 2008). In the case of negative or disconfirming evidence, the team worked collaboratively to revise our coding framework by modifying construct definitions or eliminating constructs, when appropriate. The coding pair met frequently to share and test emergent codes, work through coding inconsistencies, refine the coding framework and rubrics, and build reliability. When coding pairs disagreed on alignment ratings, the pair brought the issue to other members of the research team for a resolution. Last, the coding pair wrote in-depth annotated memos during the coding process, which summarized and ultimately interpreted qualitatively-coded data and rubric ratings.

4. Results

We now turn to our findings on horizontal and vertical alignment based on interview data from local participants. The section begins with perceptions regarding horizontal alignment in Pre-K; it then moves to perceptions regarding horizontal alignment in kindergarten before covering perceptions about vertical alignment between Pre-K and kindergarten. It concludes with explanations given by participants for their perceptions of relatively weak vertical alignment. Rubric ratings of participant reports of horizontal and vertical alignment are summarized in Table 2.

4.1. Reported horizontal alignment among instructional supports in pre-kindergarten

4.1.1. Standards and curricula

Participants in all six counties we analyzed consistently reported strong alignment between standards and curricula in Pre-

Table 2
Summary of findings on horizontal and vertical alignment.

	Pre-kindergarten participants	Kindergarten participants
Horizontal: alignment within grade		
Standards – curricula	Strong (6/6)	Strong (6/6)
Standards – assessments	Strong (4/5)	Strong (4/6)
Curricula – assessments	Strong (4/4)	Strong/moderate (6/6)
Vertical: alignment between Pre-K and K		
Vertical (standards)	Strong (4/5)	Weak/moderate (4/6)
Vertical (curricula)	Moderate (2/3)	Weak (4/6)
Vertical (assessments)	Strong (3/3)	Weak (KEA) (5/6)

Note: Cells represent the sample-wide alignment rating for the corresponding type of alignment (rows) and the grade level the participant works with (columns). The numerator in the parentheses indicates the number of individual counties' ratings that match the overall rating while the denominator represents the number of counties providing data for each cell. Interviews with some participants did not provide enough information for a given alignment type from which a rating could be reliably generated, resulting in somewhat smaller denominators in some cells.

K. The state requires that Pre-K programs select curricula from a pre-approved list and one of the criteria for approval is that curricula must be aligned to the content standards for Pre-K. Participants were aware of this approval process and often used it to justify their reports of alignment between standards and curricula. For example, one participant mentioned that "[curricula] have to meet the certain criteria that the state sets forth in order to be on the approved list," highlighting a deference to the state approval processes as a means to ensure alignment.

Some participants also reported that they were explicitly trained on how standards and curricula in Pre-K are aligned. For example, one participant noted that, "From the training that I received, they did crosswalks between the [standards and curriculum] so it was very nicely laid side by side." Participants referenced crosswalk documents that detail alignment between the curriculum and the standards. They pointed to a 789-page document published by Teaching Strategies (2015), creator of the Creative Curriculum, that connects each objective from the Foundations to components of the curriculum to the Foundations. There currently is no known third-party analysis of how well the standards and approved curricula align.

4.1.2. Standards and assessments

Participants almost unanimously reported strong alignment between standards and assessments, with a few exceptions (four out of five counties that provided data on this topic reported strong alignment on our rubric rating). For the participants who reported strong alignment between standards and curricula, their justification employed transitive logic. In many cases, participants use the Creative Curriculum and the associated Teaching Strategies GOLD formative assessment system. A frequent refrain from participants was as follows: Since the curriculum is aligned to the standards, the assessment must also be aligned with the standards because it is a part of the curriculum program. The following interview excerpt illustrates the sentiment that all instructional support elements fit together:

That's why we chose Creative Curriculum and Teaching Strategies and the GOLD component piece for the assessments, because it does align nicely to the Foundations. I mean, they're right there together. In fact, like I said, there are all these crosswalks that totally align them with the standard pieces so the teachers are not over or doing duplication. They're the same. They're aligned.

Similar to alignment between standards and curricula, participants routinely mentioned that teachers had access to resources (including “crosswalks” that tie specific pieces of instructional supports to each other) that demonstrate how elements of instructional supports are aligned to assessments. As it did with the Creative Curriculum alignment document, Teaching Strategies also produced a 130-page report that matches GOLD’s objectives, dimensions, and indicators to North Carolina’s Foundations (Teaching Strategies, 2017). The document is broad in its analysis, and similar to the content standards and curriculum alignment document from Creative Curriculum, we are unaware of a third-party review investigating the validity of the Teaching Strategies’ claims of alignment between GOLD and the Foundations.

However, reports of strong alignment between standards and assessments were not universal. A small number of participants, confined to a single county, reported weak alignment. These participants claimed that the assessments used in NC Pre-K classrooms do not adequately address the whole child (i.e., the five Essential Domains of School Readiness as outlined in the Foundations). One of these participants noted, “When it comes to really assessing where a child is at, there really isn’t an assessment that has been developed that looks at a child holistically [. . .] A lot of what’s lacking is a real in-depth social-emotional kind of assessment.”

4.1.3. Assessments and curricula

Similar to standards and assessments, most participants reported strong alignment between curricula and assessments, and the overall rubric rating for all four counties that provided data is “strong”. In cases where strong alignment was reported, participants, again, pointed to the fact that the Teaching Strategies GOLD assessment system is part and parcel of the Creative Curriculum. For example, one district official stated, “We use Teaching Strategies Gold, which is part of the Creative Curriculum that we use, which is also aligned to the Foundations. So, it’s all there wrapped together.” This data excerpt illustrates how participants think about assessments, curricula, and standards as tied together into a single system of aligned instructional supports. Participants did not appear to base their responses on content knowledge or analysis of the alignment of domains or subject areas in the assessment within the curriculum. None directly mentioned specific components of the curriculum and how assessments covered them. Rather, some participants reported and assumed strong alignment between formative assessments and the curriculum based on the fact that the same manufacturer developed both.

4.2. Reported horizontal alignment among instructional supports in kindergarten

4.2.1. Standards and curricula

Similar to our participants in Pre-K, participants from all counties who worked with or in elementary schools reported strong horizontal alignment between state standards and curricula in kindergarten. However, unlike Pre-K, districts and schools are not given a list of pre-approved curricula and have more freedom in deciding what and how to teach students. Participants in half of the sampled districts reported employing curricular-design teams composed of teachers, school administrators, and district administrators that work together to provide curricular resources to their schools. In these districts, participants reported that these teams prioritize alignment to the state standards when choosing resources and creating pacing guides: “We’ve paced out the standards, and then we’ve created curriculum units based on a group of standards that work best together [. . .] and write a curriculum unit on that.” Participants in the other half of sampled districts reported leaving curricular decisions entirely up to individual schools. Although these schools reportedly had more

freedom to choose what resources to use, participants said schools were fully expected to follow state standards. Participants in these districts also reported strong alignment between the standards and the curriculum and noted that the district still provides help in aligning curricular resources to standards through professional development: “That is one of the things that our district instructional coaches work with our teachers on: making sure that the resources they’re using aligns to and addresses a standard.” Indeed, in some cases, participants had trouble differentiating between curricular resources and the state standards due to what they argued was their inherent connection: the former were created and built from the latter.

Although all participants reported strong horizontal alignment, participants from counties that chose curricula at the district-level as well as those that left curricular decisions to the school reported one caveat: curricula and standards may be aligned, but teachers determined how much that alignment was used at the classroom level. Said one participant, “you really need to unpack [the curricular resource] and be sure that it really is getting to the rigor of the standard, and not only that, but. . . you’ve got kids that need different types of scaffolding support and you can’t just do one-size-fits-all.” In short, participants were concerned that the curricula *as delivered* may not be meeting the level of rigor or alignment of the curricula *as designed*.

4.2.2. Standards and assessments

Participant reports of horizontal alignment between standards and assessments in kindergarten varied depending on what assessment participants referred to, with four out of six counties reporting “strong” alignment. All participants identified two different state-required assessments that took up considerable time for both teacher and administrators: the mClass and the Kindergarten Entry Assessment (KEA). The mClass assessment measures students’ literacy and text comprehension throughout the year; the KEA—requiring students to be assessed in the first 60 days of the school year—is a portfolio based formative assessment that focuses on the five domains of school readiness (For more about the KEA and mClass assessments, see ncpublicschools.org/accountability/testing/). When discussing alignment of an instructional support with assessments herein, we specify which of these two assessments, where applicable.

Participants rated the alignment between mClass and the standards as strong, saying that the content measured on mClass matched what students were supposed to know from the standards: “these assessments allow us to see whether or not the students are making progress towards [grade-level expectations], and so the assessments that are given are aligned with the standards.” One participant even reported that the state chose mClass specifically because it was aligned to state expectations for students, as written in the standards.

Participants rated the alignment between the KEA and standards as weaker than the alignment with mClass. Specifically, some participants had trouble seeing the connections between the holistic KEA, which includes domains of social-emotional learning, and the state content standards, which are focused on academic domains. One district curricula administrator noted that “Those things [on the KEA] are important skills for young children, but I think that teachers – I think that that’s a stretch for some folks to be able to see how a crossing midline assessment⁷ supports kids meeting content standards.” The disconnect between kindergarten standards and a

⁷ Crossing the body’s mid-line is the ability to reach across the middle of the body with the arms and legs; doing so allows children to perform a task on the opposite side of their body.

focus on socio-emotional development was a common theme and one that we will return to later in our findings.

4.2.3. Assessments and curricula

Participants generally reported strong alignment between assessments in kindergarten and curricula used in the classroom, with four counties reporting strong alignment and two reporting moderate. One principal who saw strong alignment between the content of the mClass and what was being taught went further, saying “When I go in [the classroom], I can see that the results from the test are aligned with what the teachers are teaching.” Similar to findings related to assessments in the previous section, participants rated the alignment between the curricula and the KEA lower than with mClass, reporting that socio-emotional development was not a classroom priority beyond the KEA. In other words, participants saw direct connections between what was being assessed with mClass but little practical relevance with the KEA.

Here again, a few participants noted that while the mClass and curricular resources designed by the district were themselves aligned, what is actually enacted in the classroom is still highly dependent on individual teachers: “I think our assessments are aligned [with our curricula tools]. Anything we create in the district we align very closely, but then if the teacher is not using . . . it then they may not match.”

4.3. Reported vertical alignment between instructional supports in Pre-K and kindergarten

4.3.1. Standards

The rubric ratings for vertical alignment of standards between Pre-K and kindergarten varied depending on whether we were talking with a participant in the Pre-K or kindergarten sphere (see Table 2). Participants who worked primarily with Pre-K reported the alignment of standards between Pre-K and kindergarten as strong (four out of five counties that provided data), while participants who worked with kindergarten assigned a mix of ratings that generally indicated moderate or weak alignment (four out of six counties that provided data gave either “moderate” or “weak” alignment). The two groups seemed to display differences in terms of their ability to justify their responses. Pre-K participants rarely had direct experience with the standards used in kindergarten and thus relied on guidance from the state: “We have something called a crosswalk that ties the standards that we have [in Pre-K] to the standards that are in K through three.” This referenced crosswalk, a document created by the state that arrays similar elements of the two sets of standards next to each other, was referenced by nearly all of the Pre-K district participants we spoke to.

Kindergarten participants, including principals who had NC Pre-K classrooms in their schools, were much less likely to provide evidence of strong vertical alignment of standards, citing what they characterized as a major disconnect between the academic rigor of the two sets of standards. Some participants went further to claim that the standards used in Pre-K lacked the necessary rigor to prepare students for kindergarten. One principal frustrated with a Pre-K classroom said, “The NC Pre-K is so much like daycare. . . I think there needs to be more rigor.” This view was shared by other principals and district officials in the county.

4.3.2. Curricula

Participants in both Pre-K and kindergarten reported the alignment of curricula between the two grades as weakly or only moderately aligned, and provided a variety of reasons to justify their ratings. One obvious source of misalignment came from the differences in curricula. While curricular resources used in kindergarten continued into later grades in many districts, there was “separation” and only a “little bit of overlap” with Pre-K curricula.

One school principal, who had an NC Pre-K classroom in her/his school, claimed that the two settings looked completely different from one another in terms of content and expectations: “In NC Pre-K, you’re used to play time where you’re learning how to be socially interactive with your friends. And you go to kindergarten where you’re having to learn to sit still and read a book on your own and write paragraphs. That’s a huge jump.” A district official in another county explained this difference through the role of the teacher: “When [students] get to kindergarten, it’s teacher-centered. The teacher leads the class. Whereas in Pre-K, the teachers encourage giving students choices and they can decide what they want to work on.” This difference in expectations had some district officials, especially those who worked with Pre-K students, concerned that instruction in kindergarten was not individualized enough to meet students’ developmental needs. In this sense, while both sets of participants rated the vertical alignment as weak, they sometimes had opposing views on how an ideal alignment would occur. Pre-K participants, for example, may advocate for a more social-emotional focus in kindergarten while kindergarten participants may advocate for a more academic focus in Pre-K. We term this tension the *academic-developmental* debate and return to it later.

4.3.3. Assessments

Similar to the horizontal alignment ratings between assessments and other instructional supports, participant reports regarding the vertical alignment of assessments differed depending on whether they were referencing mClass or the KEA. As the KEA has an intentional focus on the five domains of school readiness (including non-academic domains such as socio-emotional learning), participants from both Pre-K and kindergarten referenced a connection between it and the formative assessments given in Pre-K. Indeed, the technological infrastructure for the KEA and GOLD are from the same company (Teaching Strategies). According to participants who worked with Kindergartners, however, Pre-K assessments “look nothing like what we have to use in kindergarten,” referring to mClass. These claims mirrored participants’ comments on the curricular differences between Pre-K and kindergarten: the former focuses more on the “whole child,” while the latter focuses on academic skills and abilities.

4.4. Explanations for weak vertical alignment

Our interview data provide three key explanations for weak and moderate ratings of vertical alignment between Pre-K and kindergarten. We refer to them as an Academic-Developmental Debate; Institutional Silos; and Tools, Procedures and Practices, respectively (see Table 3).

4.4.1. An academic-developmental debate

One common explanation for reported vertical misalignment that came up among our participants was a debate in the early learning community around the purposes of early childhood education, one we refer to here as the *academic-developmental* debate following NAEYC (n.d.) and Little and Cohen-Vogel (2016). In short, opinions differ between what is developmentally appropriate in both Pre-K and kindergarten and what an ideal mix between socio-emotional and content-based academic instruction should be. Participants provided consistent characterizations of the current landscape of Pre-K and kindergarten, arguing that Pre-K focuses more on developing students’ non-academic skills, including domains such as self-regulation and interpersonal skills, and kindergarten focuses more on developing students’ academic skills, such as numeracy.

Participants had substantially different perspectives on whether or not these foci are appropriate and, if not, which grade level needs to change. These differences were reported both between

Table 3
Key explanations for weak vertical alignment.

Explanation	Definition	How is alignment weakened?
<i>Academic – developmental debate</i>	The ways in which educators view the purposes of early education, with regard to whether the curricula should focus more on academic content or socio-emotional learning.	Educators may disagree on whether Pre-K should include more rigorous content, whether kindergarten curricula is age-appropriate, and what the right balance between socio-emotional learning and academic content should be.
<i>Institutional silos</i>	The separation between agencies and departments that govern Pre-K and kindergarten.	Pre-K and kindergarten are governed by separate entities at the state and district levels, leading to different policies and approaches towards instructional supports.
<i>Tools and practices</i>	State-level guidance and structures (and lack there-of) that promote and support. Kindergarten transition practices and sharing of data.	Districts and schools often do not have policies on transition practices or data sharing. Two possible factors can increase alignment: co-location of Pre-K classrooms within elementary schools and state plans to create guidance and policies around data sharing and transition practices between Pre-K and kindergarten.

and within the counties we analyzed. Some participants had no issues with the increased focus on content-based instruction in kindergarten. Said one elementary school principal, “I don’t think there is a tension [between academic-developmental foci]. My kindergarten teachers understand the developmental side and they understand the importance of that. But, when those kids get in kindergarten, they’re going to start ramping up the academics.” Others, including Pre-K participants and one school superintendent, were more critical of the level of expectations placed on kindergarten students. One Pre-K coordinator, who used to work in kindergarten, said, “The expectation for [students in kindergarten] is just so high. We have made our kindergarteners grow up too fast. . . I feel like that we’ve put too much on them and not allow them to have enough of this hands on, enough of this social interaction.”

An elementary school principal in a different district shared similar sentiments, claiming that the increased expectations in kindergarten overburdened both students and teachers:

I think the county has not looked at things that are age-appropriate for kindergarten students. And it causes students to become very frustrated. We have kindergarten students who are struggling. And not only are the students struggling, but the teachers are struggling because they are almost pushed to teach these skills and the kids are not ready.

For these participants, classrooms should focus more on developing the social skills of young students to help ease the transition into more rigorous academic content.

Other participants, however, espoused a much different opinion, saying that the academic rigor of Pre-K should increase to meet the demands of kindergarten. According to one district official,

I’ve done a little bit of digging with the data and seen some dips in some things that I would expect pre-K children to have under their belts when they come to kindergarten, and they don’t. And, I know that our pre-K programs serve the neediest children we have in the district, but I feel like we probably could do a better job of ramping up that rigor so that kids come to kindergarten a little bit better prepared than they are.

Participants who shared similar opinions mostly blamed Pre-K’s focus on play-oriented learning and focus on non-academic skills. Thus, while some participants thought that the academic rigor in kindergarten was not age-appropriate and should be dialed down, others wanted to enact more rigor in Pre-K.

In short, there was clear disagreement among our participants concerning the appropriate level of academic-based or developmental-based learning in both Pre-K and kindergarten. The KEA, with its focus on the five essential domains of school readiness, can be seen as an attempt to alter the balance of the academic-developmental distribution in kindergarten. In fact, one participant said, “What we’re trying to do, through the KEA, is shine a light on

the need for curriculum materials that would match what students need in the classroom. . .so it’s a whole-child focus.”

4.4.2. Institutional silos

Another common explanation participants gave for the reported misalignment of instructional supports between Pre-K and kindergarten was the separation between agencies that govern them. As noted in the background section, NC Pre-K (and many of the state’s early childhood education initiatives) is housed within North Carolina’s DHHS. Meanwhile, kindergarten and the rest of the K-12 system is governed by DPI and local education agencies. These two state agencies are led by different officials and governing boards, and have different institutional norms, cultures, and routines of practice. One elementary principal, who had both Pre-K and kindergarten classrooms in his/her building, said it was obvious that the two standards documents were created with minimal communication between the agencies:

Pre-K’s kind of off on its own...it’s an isolated kind of area that’s not really brought into the true K-12 picture. There needs to be a conversation where they align the curriculum and NC Pre-K becomes part of the North Carolina educational landscape. They need to all be in the same room.

Despite this perception, there is evidence that the state has been working to overcome these structural barriers to vertical alignment. First, according to participants, stakeholders from the two agencies were in the room together when the kindergarten standards were revised in 2014: “It was a collaborative effort to develop [the revised kindergarten] standards with the DHHS, with the state partnership, with other stakeholders across the state.”

Second, the state has developed a document that provides a crosswalk between the Pre-K standards, the North Carolina Foundations for Early Learning and Development, and the kindergarten Standard Course of Study standards (that continue until grade 12). Multiple district participants reported that they were introduced to this document in professional development sessions.

Third, in addition to the crosswalk document, the state has most recently developed a commission (The B-3 Interagency Council) to help bridge divides between DHHS, which administers Pre-K, and DPI, which administers K-12 education. The commission intends to “create a strong continuum of education for when a child leaves our [early education] system, at five or four [years old], and then goes into the K-3,” according to one participant. Despite these collaborations between the two agencies at the state level, participants said the physical and organizational separation between Pre-K and kindergarten hindered their ability to vertically align instructional supports.

4.4.3. Tools, procedures, and practices

The separations of governance structures, instructional support documents, and expectations reportedly have negative conse-

quences for educators who wish to increase the vertical alignment between the two grades. In particular, a lack of state-level guidance and structures impede two core strategies for developing strong vertical alignment between Pre-K and kindergarten: kindergarten transition practices and data sharing.

The state currently provides little formal guidance on how to transition students from Pre-K to kindergarten. Indeed, unless schools conduct their own pre-entry screeners for kindergarten students that include background questions, schools may not know if students attended Pre-K (or if they did, what kind of program). Through interview data and an analysis of collected documents, we found that conducting these pre-entry screeners is a school-based decision in participant districts. Some schools chose not to conduct pre-entry screeners, while schools that choose to do so report a range of types of pre-entry screeners employed, from comprehensive questions on both academic and non-academic ability to simply observing the child interact with others in a school setting.

One implication of this lack of standard structure is that kindergarten teachers rarely receive data from students who attended Pre-K classes. Indeed, this form of data sharing usually only occurs if the Pre-K classroom that a child attends is housed in the same physical location as the elementary school they attend. School principals in several districts told us that the only information kindergarten teachers receive from Pre-K are special education plans, where applicable. In rare cases, kindergarten teachers may receive data from assessments given in Pre-K; however, participants noted that these teachers would likely ignore these data as they are already inundated with data from other assessments in the first months of school, including the mClass, KEA, and math assessments.

Finally, principals with Pre-K classrooms in their buildings seemed more knowledgeable about the Pre-K system compared to principals who had no Pre-K in house. Several of the principals with Pre-K classrooms mentioned facilitating connections between teachers of Pre-K and kindergarten so that each understood the materials used, expected learning outcomes, and classroom environments in both grade levels. Principals who did not have Pre-K classrooms in their buildings (but had students who attended NC Pre-K elsewhere) admitted to knowing very little about Pre-K and student experiences there. Further, they reported no such efforts to connect their kindergarten teachers with Pre-K teachers. Commenting on the lack of state-level guidance on transition policies, a district-level participant noted how their district was able to foster collaboration because many of their Pre-K classrooms were located in elementary schools:

I wish that there was more collaboration between the Pre-K teachers and kindergarten teachers. . . . We're very fortunate in this district because [many] of our elementary schools have a Pre-K on site. So, a lot of that collaborative environment and that ability to plan vertically is inherent there. But, there are also Pre-Ks [within our district boundaries] that are in private settings outside [the school system], and they operate with their curriculum in isolation. A lot of times, you know, there's that disconnect there.

According to participants, difficulties with data sharing and transition practices can be further aggravated when Pre-K and kindergarten classrooms are housed in different locations.

5. Discussion

Overall, perceptions among study participants indicate that the degree of alignment among instructional supports is stronger within Pre-K and kindergarten than it is between them. Explanations offered by participants for lagging vertical alignment are instructive with regard to shaping policies and practices to improve

it. If, as those we interviewed argue, debate in the field about whether the primary purpose of Pre-K (and, to a lesser extent, kindergarten) is the acquisition of academic skills or the development of social emotional skills serves as a barrier to alignment, then policies could be enacted that establish councils and task forces to encourage dialogue. These councils might be structured to promote ongoing, frequent opportunities for experts with differing perspectives to work together with a skilled facilitator, with the ultimate goal of brokering the development of a coordinated system of early care and education to meet the needs of children from birth to age eight.

Work has recently begun in North Carolina that may pave the way; a state law passed in 2017 requires a newly-appointed "B-3" Council to establish a vision for "a birth to third grade system of early education," including standards and assessments, teacher and administrator preparation, and funding. It is important to remember that in places like North Carolina where alignment is valued, the work to bring instructional supports into vertical alignment *can be bi-directional*, drawing on materials, content, and practices from both up and down the PreK to grade three spectrum. McCormick and colleagues in this issue of *Early Childhood Research Quarterly*, for example, describe instances in which both the content of what is taught and how it is taught in early elementary schools in one metropolitan school district in New England has changed to reflect practices used in the city's publicly-funded Pre-K program.

The responsibilities of these types of PreK-to-Grade 3 or Birth-to-Grade 3 councils might also include efforts to overcome the second explanation that study participants give for weak or moderate levels of vertical alignment: institutional silos. The developers of a plan for a coordinated system of early care and education might be tasked to write recommendations for organizational changes within the separate agencies responsible for Pre-K and kindergarten—changes that build interagency collaboration and streamline communication, enrollment, and other processes. On the research side, future studies might replicate our work in a different state, one in which responsibility for both pre-K and K-12 education resides within the same agency, in order to understand whether alignment and/or reports of alignment are strengthened.

Policies that facilitate new institutional arrangements and better coordination could address an aspect of the third explanation offered by study participants for vertical misalignment: practices that fail to make data sharing a priority or, in some contexts, even possible. They could include, for example, the development and promotion of an integrated data system as well as a set of procedures and data governance agreements that make data sharing easier among Pre-K and kindergarten providers and agencies. Policymakers interested in data sharing might want to follow the impacts of a pilot currently underway in a handful of North Carolina counties; the pilot requires Pre-K teachers to rate children's school readiness in each of the five domains used in the KEA assessment administered in the first weeks of kindergarten. Then, the ratings are shared with kindergarten teachers at the beginning of the school year in order to provide them with a snapshot of the readiness levels of their incoming classes.

Data sharing would be made easier through another set of policies that require or encourage Pre-K programs to be "co-located" inside of elementary schools. Co-location may be particularly feasible in school districts, many of them rural, that are experiencing declining enrollments and school closure. Even if co-location alone may not maintain early learning gains (Identifying Reference, 2018), locating Pre-K classrooms inside of schools that offer kindergarten is likely to greatly reduce the challenges involved in data sharing and could facilitate transition practices. First, the data for Pre-K students who attend kindergarten can be more easily shared across later grades since it need not move outside of the school building; under this scenario, student data portfolios that would

have begun at kindergarten will simply start a year earlier. Second, students who attend kindergarten in the same building as they did Pre-K will be more familiar with the physical layout as well as the culture of the school than students who come from off-campus, a fact that is likely to ease the transition into kindergarten. Transition practices like kindergarten visits, home visits, and orientation nights are also easier to implement when individual schools house both Pre-K and kindergarten families (Identifying Reference, 2016).

5.1. Limitations

As we note at the start of the article, one limitation of our study is that the alignment ratings we employ are based on reported information from participants, rather than direct analysis of documents detailing Pre-K and kindergarten curricula and assessments. Relying on self-reports alone can be problematic; individuals might offer biased estimates of self-assessed behavior for numerous reasons, ranging from confusion about what is being asked to social-desirability concerns (e.g., Rosenman et al., 2011). Of particular relevance here is Polikoff's (2012) discussion of the limitations inherent in his own study. In asking teachers if they aligned their instruction with the standards, the author worried that some of his participants may not have had a deep understanding of the content embedded in standards and assessments, leading to inaccurate perceptions of whether their instruction is aligned to them. While we expected the district- and state-level participants we interviewed to have deep knowledge of the standards and assessments, our data could be strengthened by coupling them with additional types of data and methods. Future studies of alignment might, for example, array the content coverage, formats, and scoring rubrics of standardized assessments used in PreK, kindergarten, and grades 1 through 3. Similar studies of curricular alignment may pose challenges, depending on how much discretion individual schools or teachers have over the materials they use in their teaching. To overcome this limitation, studies could follow the methodology of the Surveys of Enacted Curricula (Polikoff, Porter, & Smithson, 2011). In short, teachers are asked to log what they teach (content) and the level at which they teach it (cognitive demand). Using teacher responses, the tool provides a visual "map" of what's taught (the "enacted" curriculum) against how it aligns to standards (the "intended" curriculum). Although this methodology has previously been used to study instructional supports from kindergarten to 12th grade, the Pre-K sphere remains untouched—leaving ample opportunity for future research.

As readers interpret our findings, it is also important to remember that the explanations for vertical misalignment unearthed here (the academic-developmental debate; institutional siloes, and transition practices/data sharing) are generated from the professional judgments of practice experts. As such, they should not be misconstrued as certain causes of misalignment. Instead, they can help future researchers design studies that leverage differences among states in terms of, say, early learning governance models or data sharing systems—quasi-experimental studies that might help move us closer to making a correlational or causal claim.

Another limitation concerns the generalizability of our findings. As discussed above, the broader project from which this study emerged focuses on early learning in rural North Carolina counties. With interviews conducted in these contexts, we cannot say for sure that the perceptions of stakeholders we report on here are reflective of local practitioners in other contexts or, indeed, across the nation. Education researchers could launch similar studies elsewhere; as they do, they might examine whether educators' perceptions differ between counties that vary in terms of urbanicity, per pupil spending, or the percent of children served in public Pre-K programs, for example.

6. Conclusion

We began this article arguing that a movement is afoot that aims to build a seamless educational network from Pre-kindergarten through elementary school and beyond by aligning a set of key instructional supports across sectors. Herein, we sought to understand whether the alignment goals fueling the movement have gained traction according to those responsible for early education in local agencies in rural North Carolina. In particular, we were concerned with perceptions about the alignment of standards, curricula, and assessments between Pre-K and kindergarten. Having found that educators in these contexts rate the degree of alignment among standards, curricula, and assessments within Pre-K and kindergarten as strong and alignment between them as weaker, programs might be tested that aim to reduce barriers identified by practitioners and build vertical alignment across sectors that provide early care and education. Testing should occur in a variety of settings where alignment efforts may depend, for example, on the different levels of resources available. The programs might include but are not limited to PreK-to-Grade 3 statewide councils, integrated data systems, protocols for sharing child-level data, co-locating Pre-K programs in elementary schools, and robust transition practices. Policies may then be enacted to encourage the uptake of these programs by state and district decision makers.

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