

# **Data Kindergarten Teachers Value: A Qualitative Examination of Experiences with a School Readiness Assessment**

Timothy Holcomb, Duke University, [tsh51@duke.edu](mailto:tsh51@duke.edu)

Kaitlyn O. Holshouser, Gardner-Webb University, [kholshouser@gardner-webb.edu](mailto:kholshouser@gardner-webb.edu)

Kindergarten Entry Assessments (KEAs) have grown in popularity over the past decade due to the Race to the Top – Early Learning Challenge Grant offered by the U.S. Department of Education in 2015. This study addresses kindergarten teachers' perceptions of data from North Carolina's school readiness assessment and their perceptions of what administrators' value in terms of assessment data. This qualitative study utilized empirical data collected in semi-structured interviews with five kindergarten teachers in North Carolina. Teachers mentioned they perceive a disconnect between their views and their school/district administrators' views of the overall utility of the NC KEA and data derived from the assessment. This perceived disconnect has played a part in perpetuating common misunderstandings of the purpose, implementation, and intended use of the assessment. The way teachers interpret and perceive communication from administrators plays a role in teacher morale, data utilization, and school culture. Findings in this study can help policymakers, teachers, and administrators understand the need for clear communication and training across all hierarchies of education.

*Keywords:* teacher perceptions, early childhood leadership, early childhood assessment, school readiness

Early childhood assessments should be used to guide teaching and learning, identify students that potentially need interventions, and improve educational programs (Goldstein & McCoach, 2011; Little et al., 2016; NAEYC & NAECS-SDE, 2003). Kindergarten Entry Assessments (KEAs) are implemented at the start of kindergarten to provide a glimpse of where students stand at the beginning of the year across developmental areas. Implementation of KEAs gained momentum following the Race to the Top-Early Learning Challenge Grant and Every Student Succeeds Act in 2015 (Ackerman, 2018; Little et al., 2020; Weisenfeld et al., 2020). Little et al. (2016) found the most common use of kindergarten readiness results was to assist teachers in individualizing instruction. Goldstein and McCoach (2011) demonstrated that teacher perceptions of kindergarten readiness are often derived from each individual student's health, social skills, communication ability, and ability to follow directions. According to a national policy brief analyzing KEAs implemented by states receiving the Early Learning Challenge Grant, 35 (out of 37) states implementing a statewide KEA indicated the purpose of their KEA was to provide teachers with data to inform classroom instruction (Garver, 2020). Additionally, 23 states used KEA data to inform families of their student's developmental progress (Garver, 2020).

The purpose of this study was to gain an understanding of how North Carolina kindergarten teachers use and value data from a school readiness assessment and what influences teacher perceptions in these areas. The research questions were as follows:

1. What are kindergarten teachers' perceptions of utilizing data from the NC KEA?
2. What influences the value kindergarten teachers place on NC KEA data?

## **Literature Review**

### ***North Carolina KEA***

In North Carolina, a team of kindergarten through third grade teachers, administrators, parents, early childhood experts, and policymakers developed the NC KEA to help teachers individualize instruction. The assessment addresses five developmental domains of school readiness: language and literacy, cognition and general knowledge, approaches toward learning, physical well-being and motor development, and social/emotional development (NCDPI, 2019). During the first 60 days of the school year, kindergarten teachers collect and interpret information about students in order to place students' developmental "readiness" across a series of progressions (see Table 1 for an overview of the NC KEA's developmental domains and constructs). Unlike other KEAs that are used for diagnostic or student grouping purposes, the goal of the NC KEA is to help teachers get to know students and contribute to their overall understanding of each individual student's developmental status at the start of the school year. The assessment was designed to be used as an observational measure to note students' performance in natural classroom settings as opposed to direct assessments, which intend to measure a learning goal or target by the way of obtaining evidence from a product produced by the student (Spear-Swerling, 2013).

### ***Supporting Teachers***

Research demonstrates that teachers are more equipped to identify what is being assessed and the level of student understanding from formative assessments than they are at determining appropriate next steps for instruction (Heritage et al., 2009). Data-driven decision making is a continued area to target for improvement, with a focus on data utilization and vertical data sharing (Little et al., 2019). For this reason, resources at the school, district, and state level

should be used to help teachers learn formative assessment techniques, including using information to intervene with students who do not yet understand key concepts.

District and school administrators play vital roles in setting expectations for data usage across schools. As with many educational practices, leadership influences teacher's uptake of good data-use practices (Young, 2006). Data teams typically consist of four to six teachers, an administrator, and an expert who can guide the group through the data team procedure (Schildkamp et al., 2016). When first establishing new data teams, leaders should allocate meeting time for teachers to practice analyzing data together to assist in establishing collaborative norms (Young, 2006). To fully benefit from data teams, leaders should ensure that data team meetings are sustained over time (Schildkamp et al., 2016) and occur during the school day (Darling-Hammond, 2007) so as to build teachers' capacities for data-based decision making (Schildkamp et al., 2016).

### ***Social Interactionist Theory***

The Social Interactionist Theory is made up of three primary components. First, human beings act towards things according to the meaning they place on things (Blumer, 1969; Sarangi, 2005). A second key point of the Social Interactionist Theory centers on how meaning arises out of the social interaction one has with their peers (Bahn, 2001; Blumer, 1969). Finally, the meanings an individual develops are modified through an interpretative process used by the individual in dealing with things encountered in a given context (Blumer, 1969).

Social interaction is important to the learning process for students (Cho et al., 2021) and is equally important for teachers (Darling-Hammond & McLaughlin, 1995). School cultures are shaped by the professionals within the building and the collective beliefs and attitudes of groups and subgroups of teachers (Lasater et al., 2020; Schildkamp et al., 2016). The way meaning is

constructed in schools is largely influenced by individuals' social contexts (Hurst et al. 2013). The emphasis and value that teachers and their administrators place on certain assessments can vary from person to person based on the experiences and perceptions each individual possesses. Through interaction with peers, teachers are able to improve and refine their skills by having discussions with colleagues facing similar challenges (Hurst et al., 2013). Teachers usually work in grade level teams and this community can influence and shape one's teaching practices and beliefs.

### ***Data Culture Continuum Framework***

Lasater et al.'s (2020) Data Culture Continuum framework serves as a "tool that can assist school leaders in moving their schools toward more productive approaches to data use" (p. 535). Developed through the analysis of focus groups and interviews with teachers and administrators, Lasater et al. (2020) identified six themes that are telling of a school's data culture: 1) trust and collaboration, 2) purpose of data use: compliance vs. improvement, 3) leader expectations and teacher agency, 4) data ownership, 5) leader competency, and 6) data as a tool. Lasater et al. (2020) noted that each of these themes or factors can be positive or negative at a given school. For example, just as a school can work to maintain a culture of trust and collaboration, some schools may foster a culture of distrust and isolation. When data is studied through this theoretical framework determinations can be made about a school's data culture so as to specifically pinpoint areas for improvement. For this reason, this framework served as a useful theoretical lens from which to analyze teachers' data-based practices and beliefs about the NC KEA.

## Method

### Research Design

The qualitative design applied for this inquiry was case study. According to Dooley (2002), case study can be viewed as both a research method and a theory building method. Overall, case studies aim to develop “understanding of a complex issue and can add strength to what is already known through previous research” (p. 335). According to Merriam and Tisdell (2015), “a case study is an in-depth descriptive study of a bounded system” (p. 37). Creswell (2009) further clarified that the bounded system of a case study is explored by involving multiple sources of information.

Yin (2008) explicates four steps in case study research design, which include: 1) identification of the unit to serve as the case, 2) determination of the number of cases (single or multiple), 3) establishment of selection criteria, and 4) selection of methods for data collection. The unit of analysis, or represented bounded system, in this study were kindergarten teachers in the North Carolina public school system. Given that a bounded system cannot have an infinite amount of data collected (Merriam & Tisdell, 2015), a finite group with a finite amount of possible information was selected. In this study, multiple teachers’ perspectives and experiences implementing a school readiness assessment were explored in-depth to allow for comparison in KEA implementation. The use of multiple teachers ( $n = 5$ ) represented multiple sources of information in this study. To be included in this study, participants had to be public school kindergarten teachers in the state of North Carolina and implemented the KEA.

### Data Collection Methods

Data were collected through semi-structured, audio recorded interviews (Harris & Brown, 2010). Notes were taken during the interviews as time permitted to denote areas of rich

information. Each interview lasted 20 to 45 minutes. The interviews were split into sections covering the participants teaching background, their data practices, and experiences using the NC KEA. Before concluding the interview, participants were asked a question that allowed for an opportunity for further contributions and discourse around the interview topics.

### **Participant Selection**

A previous study involved surveying the entire population of kindergarten teachers in North Carolina public schools to focus on NC KEA implementation experiences (Holcomb et al., 2020). The participants in the current study were kindergarten teachers that indicated on the final question of the 2020-21 NC KEA implementation survey that they would be willing to participate in follow-up studies to provide researchers and policymakers a more in-depth understanding of their experiences. In total, 55 kindergarten teachers responded “yes” to the final question on the survey and were contacted to participate in the current study; eight teachers responded to this initial invitation. The final sample for this study included five teachers with experience teaching kindergarten in North Carolina and with experience implementing the KEA. These teachers are referred to as Teacher 1-5 to maintain anonymity (see Table 2).

### **Data Analysis Methods**

#### *Constant Comparative Analysis*

Each interview was audio-recorded and transcribed verbatim. All identifying information were removed to keep participants anonymous. Transcripts were read and open-coded for themes. Ravitch and Carl (2016) explained that data collection in case studies is emergent in that initial findings inform subsequent data collection. Even though case studies are flexible, changes must be systematically documented (Dooley, 2002). While initial coding followed open coding (Blair, 2015) procedures, the subsequent coding was modified slightly. Constant comparison

analysis methods (Glaser & Strauss, 1967) were used to code the interview data. Coding in this study applied inductive, abductive, and then deductive constant comparative analysis methods (Leech & Onwuegbuzie, 2007).

Open codes were reviewed and cross-referenced across transcribed interviews throughout the study to ensure consistency. Initial coding was an inductive, constant comparative method in that the codes emerged from the raw data. For the second round of coding axial coding was applied to allow for comparisons between interviews (Boeije, 2002). This iterative, abductive process involved analyzing textual data in order to further develop or validate existing theories. As part of the axial coding process the open codes and textual data were analyzed for similarities and differences by considering the Social Interactionist Theory. This theory focuses on individuals making meaning out of things based on social interaction with peers (Bahn, 2001). Researchers identified patterns and developed coding categories and themes between and within interviews by considering this theory when forming axial codes. The last method of analysis involved deductive, constant comparative methods. Deductive analysis involved using pre-identified codes (or categories) from the Data Culture Continuum Framework (Lasater et al., 2020). This involved using the six positive data culture factors and six negative data culture factors defined by this framework to categorize interview data.

### **Validity and Trustworthiness of Methods and Data Analysis**

Researchers suggest utilizing multiple data analysis tools to validate and triangulate results. This can be in the form of using “multiple data sources, multiple researchers, multiple theoretical perspectives, and/or multiple methods” (Leech & Onwuegbuzie, 2007, p. 579). The current study involved multiple researchers and the application of multiple theoretical perspectives. This was done in order to validate the rigor and accuracy of inferences made in this



qualitative study (Lincoln & Guba, 1985). In the current study, constant comparative methods allowed researchers to apply multiple theoretical perspectives and analysis methods in order to triangulate and corroborate findings. Finally, to further enhance trustworthiness and legitimation (Onwuegbuzie & Leech, 2004) a sample of coded data and data from the deductive coding process are included in Appendix A.

### **Results**

The case study findings are reported according to each research question. Direct quotations from teachers are included throughout the text to provide evidence and understanding of how these five teachers used and valued KEA data, and what influenced their perceptions in these areas. To reiterate, the research questions for the study were:

1. What are kindergarten teachers' perceptions of utilizing data from the NC KEA?
2. What influences the value kindergarten teachers place on NC KEA data?

#### **Findings for Research Question 1**

Teachers perceived their school and district level leaders to have a lack of awareness about the intended use of the NC KEA. This perception led the teachers in this study to de-value data coming from this formative assessment process. All teachers in this study mentioned issues with not knowing "what happens to the data." This demonstrated a lack of teacher agency and ownership of the NC KEA data. However, through follow-up questions it was evident that teachers were knowledgeable and had some experience taking ownership and using data to drive their instruction and to improve student learning, just not with data generated from the NC KEA.

Also, it was evident that there was a lack of understanding of the overall purpose of the NC KEA at the classroom, school, and state levels, according to teachers interviewed in this study. In every interview, teachers mentioned the data went somewhere but were not seen or

mentioned again. For example, Teacher 3 stated: “I kept asking ‘where’s this data going? Why do I need to do this?’ And the only answer I’ve been given is that it’s part of the (school) report card.”

Teacher 4 placed most of the issues with using data from the NC KEA with state level leadership.

Maybe that’s just the way the state is, things just keep changing so fast. Seems like the questions we have, there are no answers to because nobody has thought that far ahead. When you ask them, you just get crickets because there’s not even a short-term plan and that’s the problem my colleagues and I have always had with KEA. You collect the data and then you’re, you never hear what happens to it. You never hear what they do with it, so it has always been a frustrating thing because it feels like it’s pointless. It’s just one more thing you have to do. But there’s no purpose behind it. And just like students, they don’t want to be given work that there’s no purpose to, well teachers, don’t want extra work because there’s no purpose to, and I don’t care if they’re going to change the name of it to the ELI, there’s no purpose behind it. This should be an exit out of preschool.

All but one teacher in the study viewed the NC KEA as a demand, despite the state’s intention for the assessment to be a resource for kindergarten teachers. Teacher 1 commented, “The administration simply checks it off that (the NC KEA) has been done. I don’t know that they really look at it and compare it. Or use it for informed decision making.” Teacher 1 also mentioned, “Honestly, I have not found (data from the NC KEA) to be useful. It gives me a starting place, I guess I would say it gives me a starting place.” Teacher 3 mentioned similar frustrations and stated the NC KEA was “a waste of time.” Teacher 3 placed the blame of overburdening teachers with state level leadership and did not see that the assessment or its data

were used for anything other than tracking students. This caused frustration for Teacher 3 since this teacher viewed the assessment as an extra demand and something that wasted valuable time.

There was one teacher interviewed, Teacher 5, that indicated data from the assessment was valuable and was used to drive instruction, form groupings, and design interventions across the grade level team. Teacher 5 held such a belief about the assessment even though school leaders viewed the NC KEA as simply another task to check off. For Teacher 5, the data validated what was showing up on other assessments and in data collected at the classroom level.

### **Findings for Research Question 2**

School leadership and grade level teams were commonly discussed as strong influences over the value placed on NC KEA data by teachers. The kindergarten teachers interviewed in this study did not explicitly state that leaders at the school, district, or state levels act as barriers for their ability to value data from the NC KEA. Likewise, these teachers did not explicitly mention that leaders' attitudes and beliefs paved an opportunity for data from the NC KEA to be valued. There were underlying messages and statements from teachers that have application to both sides of the discussion of how school leaders shaped whether and to what extent teachers valued data from this assessment.

Teacher 1 mentioned their school leadership valued the data related to student behavior more so than the data related to students' developmental growth or performance on academic standards. Teacher 1 explained that the data from the NC KEA and other mandated assessments were more valued in typical kindergarten classrooms by administration than in the self-contained special education classroom setting. Teacher 2 found the information from the NC KEA and other assessments required by their school and district at the beginning of kindergarten to be contradictory to what students actually can do based on observations in the classroom and during

other assessment situations. It is interesting to note about this teacher's beliefs about the NC KEA since the ratings on each progression of the NC KEA are based on the teacher's observations of students. This most likely points to a misunderstanding of how to implement the assessment. It is possible that Teacher 2 treated the NC KEA as a direct assessment instead of an observational assessment.

According to Lasater et al. (2020), schools create data cultures that exist on a continuum between positive and negative based on "data factors" and a school's placement on the continuum is fluid. Through applying deductive analysis methods using the Data Culture Continuum Framework, the data in this study demonstrated four out of five teachers were in schools with much greater negative data culture factors than positive data culture factors (see Table A1). Distrust, compliance, and having no expectations or teacher agency were the most frequently coded categories in this study. These three negative data culture factors are intertwined in this study because interviewed teachers believed that leadership at the school, district, and state level had no intention or expectation of using data from the NC KEA. However, it can be surmised that if kindergarten teachers and their administrators had a greater understanding of the purpose of the NC KEA these views would not be quite as harsh.

School level administrators and district leaders often set the tone for the attitudes and behaviors that teachers adopt regarding data use (Lasater et al., 2020). This was evident in the current study through the following comment made by a teacher: "My principal is a big data pusher, anything that comes with a number or type of scale." Given that the NC KEA is not summative or quantitative in nature, this teacher's statement is of concern. This quote shows the influence of administrators on teacher's beliefs, particularly the extra emphasis principals might assign to summative results and quantitative data. One can hardly blame administrators for their

heightened attention to certain measures given the increased accountability movements in public education. When assessments are primarily used for accountability and their formative functions are neglected, teachers may also adopt a purely summative approach to data analysis.

Something common across multiple interviews was that administrators checked in on progress with the assessment to make sure the assessment was going to be finished and artifacts from the assessment were going to be uploaded in the assessment platform by the state's 60th day of school deadline. Teacher 4's administrators checked in each October to ensure the assessment was completed.

(The administrators) make sure we get it done because it's a county expectation. That's what we just keep hearing, it's a county expectation'. We get asked real briefly in October, 'hey did you guys do it?' 'Yeah, we did it.' And then, that's it. Get it done. And that's pretty much all that's been said.

Teacher 5's administrators told her team to "make sure you get it done, 'I'll help you'" and that it was a box to check off. According to Teacher 5, the district only provided training and support when the assessment initially came out, and their school administrator did not provide support with implementation or using data from the assessment.

### **Discussion and Conclusion**

The aim of this study was to understand how kindergarten teachers use and perceive data from a school readiness assessment and what influences teacher perceptions in these areas. While some interview data pointed to grade level teams, the most evidence directly related to school leadership and their influence on how individual teachers and their grade level teams viewed NC KEA data. How teachers perceive their administrators' values or preferences in terms of utility of assessment data can positively influence teacher morale. This offers the question: how can

administrators best convey their perceptions to their teachers of early grades? Overall, administrators lack experience in teaching early childhood grade levels, most often have not taken courses focusing on child development, and are not trained in their leadership programs on the nuances of early childhood teaching and learning (Nicholson et al., 2018; Shue et al., 2012). This has negative implications for initiatives in early grade levels, especially in the area of early childhood assessment.

In most interviews there was a blame for misunderstandings placed on the district and state level for not providing information about what to do with data from the assessment. Also, it was unclear to teachers interviewed in this study as to what happens with data from the NC KEA. Teachers were very much focused on the process of completing the assessment as opposed to what insights they could glean about their students while implementing the assessment. The state intended for this assessment to be a resource for teachers as they get to know their students in the first 60 days of kindergarten (NCDPI, 2019). However, this study confirmed previous findings that teachers almost exclusively view the assessment as a demand (Holcomb et al., 2020).

Many of the kindergarten teachers' responses indicated a lack of shared understanding about the intended purposes of the NC KEA. States receiving the Race to the Top-Early Learning Challenge Grant were tasked with reporting a school readiness accountability metric. Once the federal grant funds expired, North Carolina continued to fund this early childhood assessment initiative and the state board of education developed a school readiness reporting mandate (NC General Assembly, 2014). While the team that created the assessment intended for it to be a useful formative and qualitative tool for teachers, many teachers and administrators continue to view the NC KEA through a summative lens since it is reported in a similar way to other

summative measures. Some confusion about the purpose of the NC KEA comes from the fact that most state-mandated assessments are summative in nature. So, many teachers may have a difficult time viewing a statewide assessment as anything other than accountability driven.

In a recent policy brief on pre-kindergarten leadership in North Carolina, Little et al. (2022) found two positive indicators of a school leader's inclination towards being an engaged early education leader. These researchers demonstrated principals with positive orientations to early education leadership were more likely to have completed early childhood leadership coursework in their leadership program and had experience teaching in the early grades (defined as pre-kindergarten through third grade). As early childhood education access is expanded and emphasized through greater access to funding, it is important that school leaders are provided appropriate training that will allow them to effectively support and lead their entire schools.

While many states' school leadership preparation programs may offer coursework on early education leadership, as of 2021 only nine states included early education content in their principal licensure requirements (Talan & Magid, 2021). Illinois is the only state to include an early childhood leadership practicum or field experience as part of principal licensure requirements (Talan & Magid, 2021). It is essential for leaders of early childhood teachers and students to have knowledge and experiences in child development and assessing young students.

### **Implications and Limitations**

Findings in this study can help policymakers, teachers, and administrators at all school levels understand the need for clear communication and training across all hierarchies of education. If you ask the question "who is this for?" in an education space and the answer is not students, then something needs to be done. In the interviews in this study, evidence of training and general knowledge of the assessment were present but quite limited at the classroom teacher

level. It is evident that knowledge of the assessment and training on the purpose of the assessment needs to occur for principals, other school support staff, and district level administrators as well. The disconnect and lack of interaction from the classroom teacher to other hierarchies in the education system have played a substantial role in how teachers applied the assessment and placed value on data from the assessment. Education policymakers should carefully consider their assessment reporting decisions, and how to address early childhood education in programs preparing school leaders, and include early education courses and experiences in school leaders' licensure requirements.

This study offered an in-depth look at five teachers' experiences with the NC KEA in order to learn about their perspectives of using data from this school readiness assessment. These results are not intended to be representative of all North Carolina kindergarten teachers' views. Each case in this study relied on one source of data, a single interview. Teachers answered questions based on their perceptions of a state mandated, school readiness assessment during a time when many teachers had displeasure with how their school, district, and/or state was handling the COVID-19 pandemic.

This study did not examine the extent to which leaderships role in data practices influences student achievement and learning. Research is needed on the training administrators receive to work with early childhood teachers, specifically the teachers of grades not utilizing summative, standardized assessment measures. How principals view assessments that teachers of young children use has an important role in fostering positive cultures and data use practices. Future research can examine the relationship between school data cultures, administrator attitudes towards early childhood assessments, and student development. Finally, it would be



beneficial to interview school leaders in a similar study to understand their perceptions, values, and understanding of early childhood assessments.

Table 1  
*Components of the North Carolina Kindergarten Entry Assessment*

Domains	Construct	Examples
Language Development and Communication	Book orientation	Understands that books contain pictures and/or words.
	Print awareness	Understands that books contain pages of print that represent language.
	Letter naming	Knows features of letters.
	Following directions	Responds to directions, requests, and commands in various settings.
Approaches to Learning	Engagement in self-selected activities	Makes purposeful choices for self-directed tasks.
Emotional and Social Development	Emotional literacy	Understands that emotions have causes and effects.
Cognitive Development	Object counting	Recognizes that counting tells the number of objects.
Health and Physical Development	Grip and manipulation	Type of grip used.
	Hand dominance	Dominant hand used for manipulation.
	Crossing midline	Midline crossed consistently.

*Note.* Adapted from *Did You Know?...*, by Hunt Institute, 2015.

Table 2  
*Overview of Interviewees Teaching Experience*

Participant	Overall Teaching Experience (Years)	Kindergarten Experience (Years)	Position at time of Interview
Teacher 1	40+	4	K -2 Adaptive Curriculum Teacher
Teacher 2	17	9	Kindergarten Teacher
Teacher 3	9	9	Kindergarten Teacher
Teacher 4	5	4	Virtual Kindergarten Teacher
Teacher 5	8	4	Middle School Teacher

### References

- Ackerman, D. J. (2018). Real world compromises: Policy and practice impacts of kindergarten entry assessment-related validity and reliability challenges. *ETS Research Report Series*, 2018(1), 1-35. <https://doi.org/10.1002/ets2.12224>
- Bahn, D. (2001). Social learning theory: Its application in the context of nurse education. *Nurse Education Today*, 21(2), 110-117. <https://doi.org/10.1054/nedt.2000.0522>
- Blair, E. (2015). A reflexive exploration of two qualitative data coding techniques. *Journal of Methods and Measurement in the Social Sciences*, 6(1), 14-29. <https://doi.org/10.2458/v6i1.18772>
- Blumer, H. (1969). *Symbolic interaction*. Prentice Hall.
- Boeije, H. (2002). A purposeful approach to the constant comparative method in the analysis of qualitative interviews. *Quality & Quantity*, 36, 391-409.
- Cho, S., Huang, T., Chou, S., & Chou, C. (2021). A tentative study using the social interaction model to improve the effectiveness of literacy visits and writing. *Proceedings of the World Symposium on Software Engineering*. <https://doi.org/10.1145/3488838.3488844>
- Creswell, J. W. (2009). Mixed methods procedures. In J. W. Creswell (Ed.), *Research design: Qualitative, quantitative, and mixed methods approaches* (pp. 203-226). Sage Publications, Inc.
- Darling-Hammond, L., & McLaughlin, M. W. (1995). Policies that support professional development in an era of reform. *Phi Delta Kappan*, 76(8), 597-604.
- Darling-Hammond, L. (2007). Race, inequality and educational accountability: The irony of “No Child Left Behind.” *Race Ethnicity and Education*, 10, 245-260.
- Dooley, L. M. (2002). Case study research and theory building. *Advances in Developing Human Resources*, 4(3), 335-354. <https://doi.org/10.1177/1523422302043007>
- Garver, K. (2020). *The “why” behind kindergarten entry assessments* (Policy Brief 2020-08). National Institute for Early Education Research, Rutgers Graduate School of Education. <https://nieer.org/wp-content/uploads/2020/08/KEA-Policy-Brief.pdf>
- Glaser, B. G., & Strauss, A. L. (1967). *The discovery of grounded theory: Strategies for qualitative research*. Aldine.
- Goldstein, J., & McCoach, D. B. (2011). The starting line: Developing a structure for teacher ratings of students’ skills at kindergarten entry. *Early Childhood Research & Practice*, 13(2), 1-12.
- Harris, L. R., & Brown, G. T. L. (2010). Mixing interview and questionnaire methods: Practical problems in aligning data. *Practical Assessment, Research, and Evaluation*, 15, 1-19. <https://doi.org/10.7275/959j-ky83>
- Heritage, M., Kim, J., Vendlinski, T., & Herman, J. (2009). From evidence to action: A seamless process in formative assessment? *Educational Measurement: Issues and Practices*, 28(3), 24-31.
- Holcomb, T. S., Li, Z., Ferrara, A. M., & Lambert, R. G. (2020). *Practitioner perspectives on the implementation of the North Carolina Kindergarten Entry Assessment (CEMETR-2020-* *Journal of Research in Education*, Volume 32, Issue 1

- 11). Center for Educational Measurement and Evaluation: University of North Carolina at Charlotte. <https://ceme.charlotte.edu/ceme-technical-reports>
- Hunt Institute. (2015). Did You Know? NC Kindergarten Entry Assessment to be Implemented Statewide Fall 2015. Retrieved from [http://www.hunt-institute.org/wp-content/uploads/2015/08/Did\\_You\\_Know\\_KEA\\_July-2015.pdf](http://www.hunt-institute.org/wp-content/uploads/2015/08/Did_You_Know_KEA_July-2015.pdf)
- Hurst, B., Wallace, R., & Nixon, S. B. (2013). The impact of social interaction on student learning. *Reading Horizons: A Journal of Literacy and Language Arts*, 52(4), 375-398. [https://scholarworks.wmich.edu/reading\\_horizons/vol52/iss4/5](https://scholarworks.wmich.edu/reading_horizons/vol52/iss4/5)
- Lasater, K., Albiladi, W. S., Davis, W. S., & Bengston, E. (2020). The data culture continuum: An examination of school data cultures. *Educational Administration Quarterly*, 56(4), 533-569. <http://doi.org/10.1177/0013161X19873034>
- Leech, N. L., & Onwuegbuzie, A. J. (2007). An array of qualitative data analysis tools: A call for data analysis triangulation. *School Psychology Quarterly*, 22(4), 557-584. <https://doi.org/10.1037/1045-3830.22.4.557>
- Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Sage.
- Little, M., Cohen-Vogel, L., & Curran, F. C. (2016). Facilitating the transition to kindergarten: What ECLS-K data tell us about school practices then and now. *AERA Open*, 2(3), 1-18. <https://doi.org/10.1177/2332858416655766>
- Little, M., Cohen-Vogel, L., Sadler, J., & Merrill, B. (2019). Data-driven decision making in early education: Evidence from North Carolina's pre-k program. *Education Policy Analysis Archives*, 27(18), 1-23. <https://doi.org/10.14507/epaa.27.4198>
- Little, M., Cohen-Vogel, L., Sadler, J. & Merrill, B. (2020). Moving kindergarten entry assessments from policy to practice evidence from North Carolina. *Early Education and Development*, 31(5), 796-815. <https://doi.org/10.1080/10409289.2020.1724600>
- Little, M., Drake, T., Cohen-Vogel, L., Gragson, A., & Cadilla, V. (2022). *Principal leadership of pre-k programs in elementary schools: Evidence from North Carolina* (Policy Brief). North Carolina State University College of Education. <https://drive.google.com/file/d/1riCgLxV7FFMpLCTdCvSfNXitVfBc5vHK/view>
- Merriam, S. B., & Tisdell, E. J. (2015). *Qualitative Research: A Guide to Design and Implementation* (4th ed.). Jossey-Bass.
- National Association for the Education of Young Children & National Association of Early Childhood Specialists in State Departments of Education [NAEYC & NAECS-SDE]. (2003). *Early childhood curriculum, assessment, and program evaluation: Building an effective, accountable system in programs for children birth through age eight*. A Joint Position Statement of the NAEYC and the NAECS-SDE.
- Nicholson, J., Lin, B., Maniates, H., Woolley, R., Groves, M. G., & Engdahl, E. (2018). We'll come back when you're teaching: Examining the need for curricular reform in higher education in response to the introduction of transitional kindergarten in California's public schools. *Teacher Education Quarterly*, 45(2), 7-36.

- North Carolina Department of Public Instruction [NCDPI]. (2019). NC KEA formative assessment process: A guide to implementation. Retrieved from <http://www.livebinders.com/play/play/1606285>.
- North Carolina General Assembly. (2014). NC Policy KNEC-017 General Statute § 115C-83.5
- Onwuegbuzie, A. J., & Leech, N. L. (2004). Enhancing the interpretation of “significant” findings: The role of mixed methods research. *The Qualitative Report, 9*, 770-792.
- Ravitch, S., & Carl, N. (2016). *Qualitative research: Bridging the conceptual, theoretical, and methodological*. Sage Publications, Inc.
- Sarangi, S. (2005). Social interaction, social theory and work-related activities. *Calidoscopio, 3*(3), 160-169.
- Schildkamp, K., Poortman, C. L., & Handelzalts, A. (2016). Data teams for school improvement. *School Effectiveness and School Improvement, 27*(2), 228-254. <https://doi.org/10.1080/09243453.2015.1056192>
- Shue, P. L., Shore, R. A., & Lambert, R. G. (2012). Prekindergarten in public schools: An examination of elementary school principals’ perceptions, needs, and confidence levels in North Carolina. *Leadership and Policy in Schools, 11*, 216-233. <https://doi.org/10.1080/15700763.2011.629074>
- Spear-Swerling, L. (2013). Observational Assessments. In Volkmar, F. R. (Ed.), *Encyclopedia of Autism Spectrum Disorders*. Springer. [https://doi.org/10.1007/978-1-4419-1698-3\\_1772](https://doi.org/10.1007/978-1-4419-1698-3_1772)
- Talan, T. N., & Magid, M. (2021). *Closing the leadership gap: 2021 status update on early childhood program leadership in the United States* (Research Brief). McCormick Center for Early Childhood Leadership, National Louis University. Retrieved from <https://mccormickcenter.nl.edu/library/closing-the-leadership-gap-113021/>
- Weisenfeld, G. G., Garver, K., & Hodges, K. (2020). Federal and state efforts in the implementation of Kindergarten Entry Assessments (2011-2018). *Early Education and Development, 31*(5), 632-652. <https://doi.org/10.1080/10409289.2020.1720481>
- Yin, R. K. (2008). *Case Study Research: Design and Methods* (4th ed.). Sage Publications, Inc.
- Young, V. M. (2006). Teachers’ use of data: Loose coupling, agenda setting, and team norms. *American Journal of Education, 112*(4), 521-548. <https://doi.org/10.1086/505058>

Appendix A

Open and Axial Coding Table – Teacher 3 (sample)

Raw Words	All Codes	Category	Themes
gross or fine motor skills	assessed skills	Assessment	Content
KEA; mClass; TRC; iReady	multiple assessments	Assessment	
starting with letters and sounds and phonological articles	student starting points	Beginning of K challenges	
developmental issues	resulting data from KEA	Data Outcomes	
gross and fine motor skills at that age	resulting data from KEA	Data Outcomes	
concepts about print; what they have and what they don't have; what they need; some kids have one to one correspondence	team data analysis findings examples	Data Outcomes	
class patterns	resulting data from KEA	Data Outcomes	Data Culture
really huge indicator of who's going to stroll academically	teacher perception of useful data	Data Outcomes	
who's ready or who's meeting their goals and needing more of a challenge	use of KEA data	Data Outcomes	
if they're ready to start reading	use of KEA data	Data Outcomes	
crew meetings	data meetings	Data practices	
not a whole lot of it	frequency of data from Beginning of year assessments	Data practices	
helps set a trajectory of growth	leadership view of use of KEA data	Data practices	
you know where your kids are	school administration expectations of teachers	Data practices	
need to have data points from them to know what they're struggling	teacher belief about data practice	Data practices	
smaller assessments that are collected	teacher perception of more relevant assessment	Data practices	
almost weekly or biweekly	teacher perception of more relevant assessment	Data practices	
look for class patterns	teacher perception of more relevant assessment	Data practices	
most useful would be phonics parts	teacher perception of useful data	Data practices	
look for class patterns of where to start teaching	teacher perception of useful data	Data practices	
what do we really need to hone in on	team data analysis findings examples	Data practices	
make a plan for each student's next steps	using data with teammates	Data practices	
what are you going to do in small groups?	using data with teammates	Data practices	
making sure that they're going to get the support they needs	student starting points	Data Use	
we need to see where they're going	teacher belief about data practice	Data Use	
some good pieces to it	teacher perceptions of KEA	Data Use	
who goes well together	use of KEA data	Data Use	
take all those information to decide where to start reading levels	use of KEA data	Data Use	
who needs extra support	use of KEA data	Data Use	
they're not the same kids they were because of instruction	speed at which students grow	Instruction	
high flyer kids	student description	Student Description	
hasn't had preschool	student experiences	Student Description	
those kids may start small group instruction to fit their needs	differentiation	Teacher practices	
we would look at it with our literacy teachers	using data with teammates	Teacher practices	
they typically only like their own assessments	leadership view of assessment data	Data practices	Leadership Perspective
don't really value state assessments or the KEA	leadership view of assessment data	Data practices	
some don't talk to you yet	challenge with testing at beginning of year	Beginning of K challenges	Challenges
kids are crying, they're peeing in their pants; all these other disasters	difficulty at beginning of kindergarten	Beginning of K challenges	
appears they don't know anything but they do	misconception from assessment data	Beginning of K challenges	
you just don't know	student starting points	Beginning of K challenges	
so many different topics	teacher perceptions of KEA	Beginning of K challenges	
especially right now; on a good year	Covid times	Covid	
unnecessary	teacher perception of KEA	Assessment	Tidious Task
just for class placement or grouping	use of KEA data	Data Use	
a waste of time	leadership perception of KEA	KEA Perception	
long drawn out process that takes away from instructional time	leadership perception of KEA	KEA Perception	

**Table A1**

*Data Culture Continuum Framework Coding Matrix*

Participants	Negative Data Culture						Positive Data Culture					
	Distrust	Compliance	No Ownership	No Leader Competency	Data as a Weapon	No Expectations or Agency	Trust	Improvement	Ownership	Leader Competency	Data as a Tool	Expectations and Agency
Teacher 1	7	1	0	1	1	11	4	6	0	1	3	3
Teacher 2	14	17	1	0	1	6	9	7	4	1	2	4
Teacher 3	8	14	7	8	0	6	15	2	2	1	4	6
Teacher 4	33	9	0	10	0	17	7	3	1	3	3	5
Teacher 5	7	1	0	0	0	7	6	1	8	4	4	4
Total	69	42	8	19	2	47	41	19	15	10	16	22