Let’s cut to the chase. Our data suggest that teaching practices in Indiana’s early care and education programs, on average, are not likely to bring about significant educational outcomes for children at risk for school failure. And our state is not alone. Pianta, Barnett, Burchinal, and Thornburg (2009) found that the “nonsystem that is preschool in the United States narrows the achievement gap by perhaps only 5% rather than the 30% to 50% that research suggests might be possible... if we had high-quality programs (p. 50).”

We recently completed our study, Assessing Indiana’s Early Education Classrooms (Conn-Powers, Cross, & Dixon, 2013), in which we observed and evaluated the quality of teachers’ interactions with children. In this brief, we explore our results and suggest strategies for improvement that will help programs better align their practices with evidence-based teaching strategies.

Early Childhood Center study
We know that high-quality early education represents one of the best investments that society can make for promoting successful educational outcomes for all children and particularly for children who are at risk (Heckman & Masterov, 2007). Early education, if it is done well, can significantly erase or minimize the achievement gaps that exist for many of our children (Barnett, 2011; Camilli, Vargas, Ryan, & Barnett, 2010; Pianta, Barnett, Burchinal, & Thornburg, 2009). The evidence is so overwhelming that 39 states have elected to provide publicly funded prekindergarten for their preschoolers (Barnett, Carolan, Fitzgerald, & Squires, 2011). The most recent report published by the National Institute for Early Education Research, The State of Preschool 2011, estimates that these states provided prekindergarten services to 28% of all 4 year-olds in this country (Barnett et al., 2011). Unfortunately, Indiana is not one of those states. In the absence of funding and state leadership, Indiana preschoolers have to rely on a patchwork system of services that falls short of the capacity to serve children who need these services most (Indiana Education Roundtable, 2012; Spradlin, Conn-Powers, & Wodicka, 2013).

In 2012, we initiated a study to investigate how early education programs in Indiana were doing. We were interested in learning how well our classrooms performed in relation to other states, how well our practices aligned with current research evidence documenting effective early education, and how well different programs in our state compared with one another. We sent out invitations to all Head Start programs, licensed child care centers, and public school preschools in the state. We observed and recorded on video 81 classrooms that were geographically and socioeconomically representative: of these classrooms, 28 were in licensed child care centers, 27 were Head Start classrooms, and 26 were public school classrooms. We recorded only in-class, morning activities and analyzed each observation using two tools: the Classroom Assessment Scoring System (CLASS) (Pianta, LaParo, & Hamre, 2008); and the Emerging Academic Snapshot (EAS) (Ritchie, Howes, Kraft-Sayre, & Weiser, 2002).

The CLASS focuses on three broad domains of effective teacher-child interactions that characterize children’s classroom experiences: Emotional Support, Organizational Support, and Instructional Support. Emotional Support captures how teachers help children develop positive relationships, enjoyment in learning, comfort in the classroom, and appropriate levels of independence.
The types of interactions that support critical thinking skills require teachers to engage in elaborate conversations with children that go deeper than merely reciting rote facts. Burchinal and her colleagues (2008; 2010) have found that only classrooms with higher levels of Instructional Support interactions (a minimum of 3.0) produce significant gains in academic achievement.

**Tapping critical thinking skills**

In this lesson, the teacher is helping children learn basic vocabulary skills to describe current weather conditions.

Learning new vocabulary (sunny, cloudy, temperature) is an important first step in building children’s knowledge of science concepts. The problem is ending the lesson there and limiting learning to the rote acquisition of these initial skills. Classrooms that implement high levels of instructional support strategies, which support greater academic achievement among children in later years, would leave the previous phrase in) help children transfer and apply these emerging concepts in ways that tap important critical thinking skills. These critical thinking skills include the capacity to compare and contrast objects or events, note similarities and differences, and even discern trends and patterns. They include the ability to apply this new knowledge in creative ways to brainstorm and produce new ideas and products, such as stories or art projects. They enable children to make connections between what they learn at circle time with what they are learning and doing at home.
Such connections help children generalize and apply their knowledge in functional ways (i.e., deeper conceptual understanding), such as recognizing what to wear before going outside or discerning how changes in the weather are associated with changes in the seasons and how that affects the types of activities they engage in.

Let’s look at another classroom and how that teacher expands on the topic of weather to build critical thinking skills. This teacher has been helping her class chart the weather from month to month, noting the number of days it was cold (or warm), the amount and types of precipitation, the types of clothes the children were wearing when they went out to play, and the types of activities they could do. This week the weather forecast is predicting warmer days and the arrival of spring. The teacher’s goal for the week is for children to compare and contrast changes in the weather, connect these changes with the concept of seasons, discuss implications (e.g., changes in what they will wear to go outside, what types of activities they can do), and make predictions concerning future changes in the weather—all critical thinking skills.

At circle time, after the weather helper has reported on the day’s weather conditions, the teacher says, “I noticed that many of you were not wearing boots and winter coats and hats and mittens when you came to school today,” and then pauses to allow children to share what they wore and their own observations. Then the teacher holds up the weather chart the class has been keeping and asks, “Last month we had to wear those warm clothes weren’t too hot in January. Why are they too hot in April?” The teacher takes her time, asking questions and pointing to relevant clues to support children’s analyses.

In this lesson, getting the right answer is less important than encouraging children to use higher order thinking skills to compare and contrast outdoor clothing and determine the reasons for the changes. The teacher reinforces children’s attempts in order to encourage their engagement and persistence and poses additional questions that ask children to explain their thinking. If the children are struggling to explain why they are wearing different outdoor clothes, the teacher may provide additional information—for example, by pointing to the weather graph and asking them what the temperatures were like in previous months—to scaffold children’s efforts. As children begin to figure it out (e.g., “It’s warmer outside. We don’t need winter clothes.”), the teacher can point to the weather chart and state that the weather is changing to acknowledge and expand on the children’s thinking: “Look at the temperatures. Are they going up or are they going down?” Moreover, as children share that they are going up, the teacher acknowledges and asks, “When the temperatures go up, does that mean it’s colder or warmer outside?” The teacher may also ask if there are changes in the type of “precipitation” to reinforce her children’s deeper understanding of weather and the changes associated with seasons.

What makes this lesson different?

First, the teacher has established clear goals of what she wants her children to learn and do. Plus, these goals focus on more advanced skills—skills that involve a greater conceptual understanding and application of the weather concepts. She has spent time preparing her materials (weather graph/chart) and determining the types of questions and feedback she will give to elicit and support children’s responses. She begins the lesson with an Advance Organizer (“I noticed that many of you were not wearing boots…today.”) to focus the children’s attention to the topic of her lesson. She follows those opening statements up with a question to launch her lesson and elicit the target skills: “Why are we wearing different clothes to go outside?” From that point on, the teacher’s interactions with her students resemble a long discussion or conversation. Children respond to the initial question with their guesses and the teacher responds in a way that supports and scaffolds their attempts. The children, in turn, respond with their next round of hypotheses shaped by their increased understanding. The teacher follows this by offering feedback that reinforces and expands on their responses. This back-and-forth exchange—repeating and extending children’s responses as they get closer to answering the opening question—supports children’s thinking. As children answer the question, the teacher may ask them to explain their thinking. The teacher may also bring in other experiences the class has had to help strengthen children’s connections with the weather concepts. For example, she might ask about outside activities they do during the weekend, helping them connect to any changes in activities that are due to the changes in seasons and weather. She may also follow the discussion at circle time with a math center activity where the children create graphs charting changes in the weather. Alternatively, an art activity to illustrate different activities associated with different seasons might be planned for later in the day. Finally, because this interaction takes the shape of an instructional conversation, the teacher focuses on expanding children’s oral language skills, occasionally introducing and explaining new, advanced vocabulary (e.g., precipitation).
These conversations can continue off and on throughout the day.

**IMPLICATIONS**

Research suggests that unless early education classrooms improve the quality of teachers’ instructional interactions with children, many children, particularly children who are at risk, will not make necessary gains. Teachers can improve their interactions and teaching practices by increasing their engagement with children throughout the day. This way, they expand their instructional goals to go beyond the rote acquisition of common skills and concepts. Lessons that target critical thinking skills, such as problem solving, classification, brainstorming, and applying recently learned concepts across new contexts are an important first step. With clear goals in mind, teachers introduce the lesson by asking questions that elicit sophisticated challenges for children to address.

Finally, rather than move to a quick correct answer, the teacher engages in a lengthy conversation, providing information and support when needed, words of encouragement to foster persistence, and follow-up questions that ask children to explain their thinking (Pianta, LaParo, & Hamre, 2008).

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**TEACHER-CHILD INTERACTIONS THAT MAKE A DIFFERENCE**

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