In 2012, the Early Childhood Center initiated a study to investigate how early education programs in Indiana were doing. We were interested in learning:

1. How well our classrooms performed in relation to other states,
2. How well our practices aligned with current research evidence documenting effective early education, and
3. How well different programs in our state compared to one another.

These articles highlight three of the major findings of our research.

- Cross, A. F. (2013). *Which Curriculum Should We Use? How Should We Choose?*
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.

**Other Briefs in this Series...**

- Assessing Indiana’s Early Education Classroom - Final Report
- How Children Spend Their Time in Preschool: Implications for Our Practice
- Which Curriculum Should We Use? How Do We Choose?

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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.
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The second tool, the EAS, measures the types and frequency of activities and instruction to which children are exposed. The types of activities recorded include common preschool activities such as free choice time, whole group time, basic routines, small group instruction, individual work time, and meal/snack times. It also measures children's exposure to various curricular areas including aesthetics (art, music, dance), literacy/language, math, science, and social studies. Some teacher actions (instruction) are also included.

What we observed

Figure 1 provides a summary of the average CLASS scores by domain and includes data from our study and from a study of Tulsa, Oklahoma, prekindergarten classrooms (Phillips, Gormley, & Lowenstein, 2009). Indiana programs do as well if not better on two of the three composite measures of the CLASS: Emotional Support (M=5.89) and Classroom Organization (M=5.36). For the Emotional Support domain, Indiana classrooms performed significantly better than Tulsa classrooms. Where we do not do as well is the quality of our Instructional Support interactions. In that domain, our average scores drop from the middle-high levels to the low levels (M=2.47). Tulsa classrooms scored significantly higher than Indiana classrooms in this CLASS domain. High-quality Instructional Support interactions include eliciting, scaffolding, and expanding on children's critical thinking and advanced language skills. Critical thinking skills, such as children answering why and how questions, enable them to explain their reasoning, generate or create ideas and products, and make connections between what they learn at school with what they are learning and doing at home.

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.

Then, in less than one minute, the teacher is finished with covering weather and moves on to the next topic.

**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, (I 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 during other times of the preschool day or 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 type of precipitation, the types of clothes the children were wearing when they went outside, what types of activities they engage in.

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).

**REFERENCES**


Pianta, R. C., Barnett, W. S., Burchinal, M., & Thornburg, K. R. (2009). The effects of preschool education: What we know, how public policy is or is not aligned with the evidence base, and what we need to know. Psychological Science in the Public Interest, 10(2), 49-88. doi:10.1177/1529100610381908


Children are growing up in a world that demands greater skills and knowledge upon entry into kindergarten, and therefore, a greater degree of accountability from their prekindergarten teachers. One of the main factors of the prekindergarten experience that is responsible for children’s academic competence as they enter into formal schooling is the way they spend their time. As we strive to provide the best balance of activities for our children, how should we organize our classroom day?

Our study, Assessing Indiana’s Early Education Programs, addresses this question. This brief examines our findings, discusses what they mean in relation to the work of other researchers, and provides practical implications for early educators interested in providing the best possible early education to his or her children. More information about this study, including other briefs in this series, can be found on the Early Childhood Center website.

**OUR 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. 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).

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**OTHER BRIEFS IN THIS SERIES...**

- Assessing Indiana’s Early Education Classroom - Final Report
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The Instructional Support domain examines how teachers promote children’s thinking and problem solving, use feedback to deepen understanding, and help children develop more complex language skills.

The second tool, the EAS, measures the types and frequency of activities and instruction to which children are exposed. The types of activities recorded include common preschool activities such as free choice time, whole group time, basic routines, small group instruction, individual work time, and meal/snack times. It also measures children’s exposure to various curricular areas including aesthetics (art, music, dance), literacy/language, math, science, and social studies. Some teacher actions (instruction) are also included.

**WHY IS THIS IMPORTANT?**

With the increased level of emphasis placed on academics in kindergarten (Conn-Powers, Cross, & Dixon, 2011), recent research has concentrated on the types of learning experiences that affect prekindergarten children’s academic skills (Camilli et al., 2010; Chien et al., 2010; Early et al., 2010). These studies generally address five types of activities in a preschool day: free choice, routines (toileting transitions, meals, etc.), whole group, small group, and individual work. Each of these classroom activities demand a different degree of adult direction and interaction and provide children with varied amounts of instructional time. Research is identifying effective teaching practices that require us to be intentional and more direct in our interactions with children. This work has implications for the types of learning opportunities we plan and include in our daily schedule.

The research literature clearly indicates that the activities benefitting children the most are those accompanied by teacher interactions that enhance their learning potential (Pianta et al., 2009; Camilli et al., 2010; Chien et al., 2010; Fuligni et al., 2012).

Chien and her colleagues further found that while there is learning potential in all classroom activities, certain groups of children—particularly those who are at risk or living in poverty—experience greater language and math benefits when they spend more time in direct instruction such as whole group, small group, or individual instruction, as opposed to free choice activities. All classroom activities, including free play and routines such as waiting in line or snack/meal times, can be enhanced by quality teacher interactions (Hamre & Pianta, 2007). In fact, La Paro and her colleagues (La Paro et al., 2009) state that regardless of grouping or instructional format, it is important to focus on the quality of children’s interactions with teachers. You can read more about this in Conn-Powers (in press). This brief discusses ways to reallocate time during the day to provide children with the types of learning opportunities that, research indicates, produce the greatest educational impact.

**WHAT DID OUR RESEARCH FIND?**

The following chart from the Early Childhood Center research study (see Figure 1) shows on average:

- 35% in free choice activities
- 28% in whole group learning
- 12% in routine activities
- 10% in small groups, and
- 10% in individual instruction

![Figure 1. How children in Indiana preschools spend their time](image)

**IMPLICATIONS**

Our research suggests three key implications for organizing the classroom day. First, it is important to recognize that children may spend a disproportionate amount of time in free play. We can examine the potential for reallocating a portion of the most frequently occurring activity, free play time, to concentrate instruction for specific children who need greater support in some academic tasks. Research suggests that many children, particularly those who are at risk for school failure, need more focused, intentional instructional time, particularly on language, literacy, and math skills. Chien et al. (2010) found that children, on average, did not learn as well in classrooms that included a high proportion of free choice time and child-directed activities.

Free choice time, however, a perfect opportunity for the teacher to carve out some focused instructional time either with individual children or with small groups of students who need additional support in specific skill areas.

During small group instruction teachers can pull together a group of children with similar academic and instructional needs to help them learn and master skills at their ability level and pace.
Small group time allows teachers to gather children for explicit instruction on a targeted skill or concept. Groups can vary in size but are typically no larger than five children. They can also vary in frequency (how many times a week does the group need to meet), time (how long does each group need to be) and composition (not every child needs the same amount of additional support). This means that several different small groups targeting different topics for different children can be held over the course of the free choice time period. The organization of a group should be intentionally planned based on the learning goals and styles of the children.

When the diversity of needs is intentionally limited, the teacher can more effectively scaffold learning to meet the needs of the group. Because active teacher involvement is a key element of small groups, they can be the most effective time to reinforce concepts or skills that may have been difficult for some children when introduced during whole group. In depth conversations about a book or topic are more likely. Each child in a small group can have a chance to talk, supporting active engagement in learning and facilitation of oral language skills. Help discriminating one sound from another is easier. Using manipulatives to understand a math concept is possible. There are many learning opportunities, and therefore significant benefits, that can result from using the small group instructional setting that are not possible in other classroom activities.

During individual work time, a teacher may further focus on a single child’s needs. It is a time for a teacher to provide individualized instruction for a child who needs additional support or encourage a child to work toward independence by applying and practicing what is introduced during whole class instructional times. These are also times during which teachers can monitor student progress.

In whole group time, all the children are involved in the same activity at the same time in a teacher-directed activity. It is a time for teachers to introduce new ideas and concepts but not—because of the numbers involved—for much individualization to take place. There is potential for rearranging some whole group time to allow increased attention to more difficult content areas with small groups or individual children. Another implication of our research is that reallocating some whole group time allows teachers the flexibility to create different groupings for children to participate in a small group or individual instruction as needs are identified.

Whole group time is an important classroom activity in preparing children for kindergarten. Our earlier work found that kindergarten teachers rely on whole group instruction at the beginning of the school year. It is essential that children develop the skills to participate in and learn during this type of activity.

Kindergarteners spend less than 5% of their time in free choice, child-directed activities compared with the 35% seen in prekindergarten programs (Conn-Powers, Cross, & Dixon, 2011). It is therefore a logical step for prekindergarten teachers to start to shift some of their child-directed free play into more teacher-directed activities to better prepare children for the routines and expectations of kindergarten.

Free choice time is not an “either-or” proposition. We propose in this brief that prekindergarten teachers consider re-examining how they spend some of their free choice time—not that they eliminate it. Free choice time provides excellent opportunities to expose children to a variety of interesting and engaging activities that promote creativity, collaboration, and problem solving. The key is to maintain a high level of teacher involvement that entails rich conversations and other interactions that help children expand and integrate their ideas and action. This the final important implication from our study and review of the literature: that teachers make use of all classroom time by engaging in high quality conversation and instructional interactions with children during all activities and routines (see Conn-Powers, 2013). This brief proposes that a portion of the 35% of preschool time that is spent in play could be well utilized for increased focus on specific skill areas for children who require increased direct attention in smaller groupings or individualized instruction.

In summary, our research shows that children who spend more time in classrooms that balance teacher-directed activities such as group and individual instruction with free choice have greater opportunities to engage in academic activities and teacher interactions that support academic growth. Children who are at risk for academic failure demonstrate greater growth in language, literacy, and math skills when engaged in more teacher-directed learning activities.


References


Teachers face conflicting information about choosing a curriculum. Friends may make recommendations — “This one is good.” Organizational history may come into play — “This is the one we’ve used before.” Publishers may promote their own products. Some curricula come with attractive features including materials, activities, and books. So, how should a teacher choose?

We recently completed our study, Assessing Indiana’s Early Education Classrooms, in which we asked teachers to identify the curricula they used (Conn-Powers, Cross, & Dixon, 2013). In this brief, we explore the results related to curriculum and offer a set of steps that will guide teachers through the conflicting information to select an effective curriculum.

**Our 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 public-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).

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**CHOOSING AN EFFECTIVE CURRICULUM**

Just as our study talks about the patchwork system of services for children that falls short (Spradlin et al., 2013), so are the curricula used in early education often a patchwork of products that fall short in bringing about the learning our Indiana children need for school success. The findings of our study and the research literature on effective curriculum confirm this point.

A curriculum “demonstrates effectiveness if the research has shown that it caused an impact in outcomes” (USDOE, 2013). Not all curricula are effective, and some may even have a negative impact on children’s learning.

In this brief we will offer three steps that you can use to determine whether your curriculum is effective. The steps are to:

1. **Verify that the curriculum is a written document with specific goals, learning experiences, methods of instruction, and materials for implementation.**

   The next section reviews the three steps, which must be used together.

   The first thing to do is to make sure that what is chosen is indeed a curriculum. A curriculum is a written document made up of several elements that together guide the teacher’s instruction. The National Center on Quality Teaching and Learning (NCQTL, 2012, June) identifies these elements: (a) goals for children’s development and learning; (b) experiences through which children will achieve the goals; (c) roles for staff . . . to help children to achieve these goals; and (d) materials needed to support the implementation of a curriculum.

   In our study (Conn-Power et al., 2013) we asked teachers to identify the curriculum they used. They provided the names of commercial, comprehensive curricula (ones that cover all content areas) and commercial, content-specific curricula, such as those addressing only phonics or mathematics.

   They also mentioned curricula that programs had developed in-house. Figure 1 shows teachers’ responses. Research has shown that children have better outcomes when teachers use a curriculum rather than none (Chambers, Cheung, & Slavin, 2006).

   In our study, 18 of 80 teachers (22.5%) gave responses that we have identified as “no curriculum.” (One teacher did not name a curriculum.) Among this group were 10 teachers who indicated that they did not use a commercial curriculum, as well as five who said that they use the Foundations to the Indiana Academic Standards for Young Children from Birth to Age 5 document as a curriculum. But the Foundations is not a curriculum (Indiana Department of Education and Family and Social Services Administration, 2012).

2. **Use the WWC to learn whether studies of the curriculum meet the guidelines for being evidence-based.**

   We searched the WWC for each of the curricula identified by teachers (U.S. Department of Education (USDOE), Institute of Education Sciences, What Works Clearinghouse, 2013). Our review found that 43 of the 80 teachers (53.8%) used curricula that have been studied (Conn-Power et al., 2013). But the other 19 teachers (23.8%) were using curricula that have not been studied to determine their effectiveness, curricula with studies that were not well done, and a curriculum with studies older than the 20-year cut-off point.

   ![Figure 1. Teachers’ use of curricula.](image)

   **Figure 1. Teachers’ use of curricula.**
This step is critical to determining the veracity of claims curriculum authors make about their products. (The evidence might show that a curriculum is or is not effective.) A proper review of curriculum can be a complex and time-consuming task that involves searching for studies in peer-reviewed journals. The What Works Clearinghouse, an initiative of the U.S. Department of Education’s Institute of Education Sciences, makes this undertaking easier by reviewing the quality of research on curricula, programs, and practices. The WWC then reports on the evidence of effectiveness so that administrators, teachers, and others can make evidence-based decisions. The WWC is accessed through its website: http://ies.ed.gov/ncee/wwc/default.aspx.

3. Use the WWC to learn if the curriculum has been shown to be effective.

Only 2 of the 80 teachers (2.5%) in our study used a curriculum that had evidence of a beneficial effect on children’s outcomes; 41 teachers (51.3%) used curricula that had no beneficial impact on children’s learning (Conn-Power et al., 2013). This troubling finding suggests that the majority of Indiana’s early education teachers are using curricula that are unlikely to bring about beneficial outcomes for children. The findings further suggest that children are not receiving the instruction that produces learning gains. This situation is consistent with national trends. The Advisory Committee on Head Start Research and Evaluation “has serious concerns about whether many curricular materials and teaching methodologies currently used in most Head Start programs are those that are most effective in promoting school readiness outcomes” (U.S. Department of Health and Human Services (HHS), 2012, p. 17).

Implications for Teachers

The first implication is that teachers will have to engage in decision making about which curriculum to use based on effectiveness in specific outcome areas. Curricula are not effective across all outcome areas.

We searched the WWC using the topic area early childhood education (ECE) to determine which curricula were effective in which areas.

The ECE topic area is focused on school readiness skills in cognition (which includes mathematics), language and literacy, and social-emotional development. (For this brief, we excluded any curriculum that was specific to children with disabilities and English language learners. We also excluded those that were not curricula, but effective programs and practices, such as DaisyQuest or Interactive Shared Book Reading.)

The following table presents all of the early childhood curricula with evidence of effectiveness in one or more outcome areas (USDOE, 2013). There were no effective curricula supporting social-emotional development, social studies, aesthetics development, or motor skills.

A comprehensive curriculum is one that covers multiple outcome areas and can be determined by comparison of the curriculum to the Foundations.

The solution for teachers might be to use both an effective content-specific curriculum with a comprehensive curriculum. The Advisory Committee on Head Start Research and Evaluation cites “a growing research literature [that] suggests that content-specific curricula that are tightly integrated with ongoing assessment and professional development systems are more effective in promoting specific outcomes than a more general curricular framework used alone” (USHHS, 2012, p. 17).

Each program administrator and teacher can use the evidence presented by the WWC to begin reviewing their current curriculum and considering the next steps to add a content-specific or comprehensive curriculum.

<table>
<thead>
<tr>
<th>All Curricula Shown by WWC to be Effective in Specific Outcome Areas</th>
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<tbody>
<tr>
<td>Mathematics achievement</td>
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<tr>
<td>Building Blocks for Math (SRA Real Math)</td>
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<tr>
<td>Pre-K Mathematics</td>
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<tr>
<td>Doors to Discovery™</td>
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<tr>
<td>HeadSprout® Early Reading</td>
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<td>Literacy Express</td>
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The second implication of our study related to curriculum is that teachers will need to make decisions about using a comprehensive curriculum that may not be effective or a content-specific curriculum that is. Head Start guidelines call for choosing a curriculum that is comprehensive (National Center on Quality Teaching and Learning, 2012, June).

These steps will help teachers use the WWC to identify a curriculum that is both effective and a fit for their programs:

2. Go to Publications and Reviews to learn about all of the products they have published.
3. Choose early childhood education in the “Select a Topic” box to read about all of the curricula.
4. Learn the terminology to read the intervention reports.
5. Go the News and Events tab to sign up for alerts of new products.

We strongly encourage the use of a curriculum with demonstrated effectiveness and hope that our study findings aid the choice of content-specific curriculum. We found that 44% of children’s time during the day is spent on literacy instruction and activities. Teachers and administrators might decide that because of the amount of time spent on literacy, a language and literacy curriculum would be beneficial for maximizing learning. Teachers and administrators might alternatively choose a mathematics curriculum to boost learning in that area.

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Pianta, R. C., Barnett, W. S., Burchinal, M., & Thornburg, K. R. (2009). The effects of preschool education: What we know, how public policy is or is not aligned with the evidence base, and what we need to know. Psychological Science in the Public Interest, 10(2), 49-88. doi:10.1177/1529100610381908


