READY TO ADVANCE™

RESEARCH FOUNDATION

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Benchmark EDUCATION

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EXECUTIVE SUMMARY

Benchmark Education Company is introducing a comprehensive, early learning program, *Ready to Advance*. This program provides research-based instruction and practices for children ages 3–5. This research foundation presents the research related to early childhood education that influenced the creation of *Ready to Advance*. The practices determined to have the most influence on children's gains in a preschool setting (Farran, Meador, Christopher, Nesbitt, & Bilbrey 2017) serve as the framework for describing *Ready to Advance*. These practices are an integral part of *Ready to Advance*.

Increasing the quality of instruction:

- *Ready to Advance* content and skills follow a scope and sequence aligned with evidence-based learning progressions (Hess 2010; Hess & Kearns 2010, 2011) that scaffold content, skills, and learning outcomes from easy to more challenging and from shorter to longer activities.
- Repeated exposures of content and skills in *Ready to Advance* are made possible using a spiraling curriculum technique (Johnson 2012) which allows for a recursive, cumulative design.
- The best practices incorporated into each lesson and professional development supports for *Ready to Advance* increase the quality of instruction by providing additional resources needed to enhance instructional effectiveness.

Creating a more positive emotional climate:

- Research (i.e., Fuhs et al. 2013; Rimm-Kaufman et al. 2009; Ursache et al. 2012) confirms a positive emotional climate and a less stressful classroom climate are linked to better outcomes for children, both emotionally and academically.
- Classroom management routines and procedures embedded in daily lessons in *Ready to Advance* ensure children have equal access to high-quality learning experiences.
- Each *Ready to Advance* unit includes a social and emotional lap book that serves as a starting point for frequent practice opportunities for children related to self-regulation, making responsible decisions, showing empathy for others, and engaging in respectful communication.

Fostering higher levels of child involvement and teachers listening more to children:

- *Ready to Advance* contains developmentally appropriate activities and graduated, central focus questions that encourage shared talking, reading, writing, and collaborative participation.
- Books used in *Ready to Advance* are written specifically for the program and contain vocabulary words, concepts, and skills aligned with instructional purposes that enable richer conversational exchanges (Bierman et al. 2008), keeping children engaged (Palermo & Mikulski 2014).

- Classroom management tools facilitate the gradual release of responsibility for decision-making and self-regulation from the teacher to the child.

Creating more math opportunities:

- Daily math lessons in *Ready to Advance* include modeling, feedback, and interactive practice to ensure development of conceptual and procedural knowledge of what is being learned, why it is useful, and how it can be applied (Clements et al. 2016; National Research Council 2009).
- Mathematics concepts, informed by evidence-based learning progressions (Hess 2010; Hess & Kearns 2010, 2011), are not confined to just the daily math activities, but are also: integrated with science content; discussed, as appropriate, during read-aloud activities and in whole and small groups; incorporated into art projects, physical development, and other areas; and reinforced in the learning centers.

Fostering social learning interactions:

- *Ready to Advance* was created with the importance of social learning interactions in mind, both children's interactions with teachers (Hamre et al. 2012) and with peers (Acar et al. 2015; Bulotsky-Shearer et al. 2012).
- The children in the *Ready to Advance* classroom have opportunities to work with partners and small-group team leaders where they choose their learning center and the children they want to learn with. Groups and choices are changeable to encourage children to experience many jobs and develop leadership skills.

Providing more sequential activities:

- *Ready to Advance*, informed by evidence-based learning progressions (Hess 2010; Hess & Kearns 2010, 2011), ensures instruction and practice are scaffolded from easy to more difficult and from shorter to longer activities, helping children gain expertise over time.
- Not only are age-appropriate expectations factored into the academically oriented whole- and small-group instruction, but also into the *Ready to Advance* routines and transitions procedures, which build in complexity across the year.

Reducing transition time:

- To reduce the stress, frequency, and time associated with transitions (Burts et al. 1990; Hemmeter et al. 2008), the classroom management tools and recommendations embedded within *Ready to Advance* instill development of efficient behavioral habits in children.
- The *Ready to Advance* classroom, using the management routines and procedures, creates clear expectations and a predictable and orderly classroom where children, over time, become comfortable with transitions, know exactly what is supposed to happen, look forward to the next activity, and feel confident in their ability to move through their day in the classroom.

INTRODUCTION

How do we prepare young children so they are ready to learn when they enter Kindergarten?

Preschool matters. From the early legacy programs, such as the Perry Preschool Project and the Abecedarian Project, to current projects, such as the 2017 report from Duke University, Center for Child and Family Policy and the Brookings Institution, *The Current State of Scientific Knowledge on Pre-Kindergarten Effects*, the question we are all trying to answered is: how do we prepare young children so they are ready to learn when they enter Kindergarten? This is a very complicated question with many variables to consider; therefore, there is not one single, simple answer.

Attempting to answer this question requires careful and thoughtful consideration of well-researched early childhood techniques and practices that help children achieve the best results in all domains of development. These techniques and practices must then be combined, by authors with long, successful histories of working with preschool children, into a well-organized, comprehensive early learning program that not only meets the needs of children but provides teachers with the necessary materials, directions, and options needed for diverse groups of children. Support for teachers is needed through comprehensive professional development to ensure teacher needs are met. This description fits the new comprehensive early learning program from Benchmark Education Company called *Ready to Advance*.

Ready to Advance is a comprehensive early learning program that provides research-based instruction and practices for children across the school year, for full-day and half-day early learning classrooms. It supports developmentally appropriate instruction across all domains of learning and correlates to the state standards for Prekindergarten and Kindergarten. The domains of learning include: social and emotional development; speaking and listening; health and physical development; social studies; mathematics; language and literacy; and science. Additionally, *Ready to Advance* provides all the necessary program components, so teachers can focus on building positive interactions that encourage language learning and effective communication with children, thus allowing children ample opportunities to talk and gain confidence in their abilities to express themselves.

This research foundation presents the research related to early childhood education that influenced the creation of *Ready to Advance*. Using the backdrop of current research, the program design and components, classroom management practices, and classroom infrastructure needed to support both children and teachers will be highlighted. The practices identified as being most related to children's gains (Farran, Meador, Christopher, Nesbitt, & Bilbrey 2017a) will serve as a framework for the *Ready to Advance* research foundation.

RESEARCH FOUNDATION FRAMEWORK

Farran et al. (2017a) "embarked on a unique mission to improve the quality of its public Prekindergarten programs through a partnership with a group of developmental researchers in an iterative, data-based venture" (p. 1466). Along with observational measures, Farran et al. (2017a) used standardized measures of child achievement, along with measures of self-regulation, narrative comprehension, and early mathematics, to study children's gains. Data from the first year of the study, which was supported by data from the second year, identified practices consistently related to greater gains experienced by the participating children. This research foundation will incorporate the practices identified by Farran et al. (2017a) as a framework to not only discuss the pertinent research but also to identify how *Ready to Advance* is related to and incorporates all these practices.

"Programs that are more educationally focused and well defined produce larger effects on child development" (Pianta et al. p. 50).

Increasing the quality of instruction

According to Pianta, Barnett, Burchinal, and Thornburg (2009), there is compelling evidence that shows preschool programs have lasting positive effects on children's cognitive and social development. "Programs that are more educationally focused and well defined produce larger effects on child development" (Pianta et al. p. 50). Additionally, the delivery of developmentally stimulating opportunities and the ways adults interact with the children are particularly important. Increasing the quality of instruction, based on this understanding of what is important, requires a combination of several components.

Learning progressions are "descriptive continuums of how students develop and demonstrate more sophisticated understanding over time" (Hess 2010, p. 57). Hess reports there is a beginning point for learning progressions that anchors the progressions with what is known about relevant concepts, based on content area, and the reasoning abilities children bring with them to school. At the ending point of the progressions are what society believes or expects children be able to do and know about different content areas.

In between the beginning and ending points, according to Hess (2010), is a network of ideas and practices that foster the building of ever-maturing understanding. Hess simplifies this explanation by stating, "a learning progression can help teachers to visually and verbally articulate a hypothesis, or an anticipated path, of how students learning will typically move toward increased understanding over time with good instruction" (Hess, p. 57). The learning progressions cross grade boundaries, showing the way in which core concepts and essential skills of different content areas typically develop when supported by

***Ready to Advance* was designed, from scratch, using all the latest research to inform its development.**

appropriate, strong instruction (Hess & Kearns 2011). Hess and Kearns (2011) also suggest learning progressions can be used for backward design that puts the focus on the learning outcomes.

Pianta et al. (2009) identify the elements that should be included in two types of curricula: the comprehensive curricula that "organize classroom activities and experiences for the entire classroom day" (p. 76), and supplements that are "embedded into a general curricular framework to provide encapsulated lessons explicitly focused [for example] on language and literacy" (p. 76). Using language and literacy instruction as an example, Pianta et al. indicate that either type of curricula, comprehensive or supplemental, should provide the following:

> A detailed scope and sequence for language and literacy instruction for the entire academic year, weekly lesson plans specifying a set of language and literacy objectives and corresponding activities, example scripts (and for some, companion Web sites) illustrating quality implementation of activities, books and other materials (e.g., manipulatives like blocks) needed to implement the curriculum, informal assessments to monitor children's progress in the curriculum, and implementation checklists to monitor teachers' fidelity to the curriculum. (Pianta et al. p. 76)

Application in *Ready to Advance*

Ready to Advance was designed, from scratch, using all the latest research to inform its development. Research-based developmental learning progressions (Hess 2010; Hess & Kearns 2010, 2011) that scaffold content, skills, and learning outcomes from easy to more challenging and from shorter to longer activities informed the content and skills included within the early learning program. The content and skills were identified and organized into a comprehensive scope and sequence using a matrix that mapped all the state guidelines and standards for children ages 3–5 years old with the position statements from the National Association for the Education of Young Children (NAEYC)* and the Early Learning Outcomes Framework from Head Start (2015)**. This extensive planning enabled the recursive, cumulative design of *Ready to Advance*.

Repeated exposures of content and skills in *Ready to Advance* were made possible using the spiraling curriculum technique. The spiraling curriculum was first advanced by Jerome Burner in 1960 and was based on the hypothesis that, taught correctly, complex content can be taught to even the youngest students (Johnson 2012). According to Johnson, the key features of the spiraling curriculum are: topics, themes, or subjects are initially taught and then revisited several times; the complexity of the topic or theme increases with each revisit; and the new learning has a relationship with old learning and is put into that context through activation of prior knowledge.

* https://www.naeyc.org/resources/position-statements/dap

** https://eclkc.ohs.acf.hhs.gov/sites/default/files/pdf/elof-ohs-framework.pdf

Ready to Advance makes use of whole-group and small-group instruction. Whole-group instruction makes use of the teacher–child managed whole-group instruction, described by Lin, Justice, Emery, Mashburn, and Pentimonti (2017), in which "the teacher and children are actively working together and are coengaged in an activity, such as reading and discussing a storybook" (p. 458). This is contrasted with whole-group instruction where the teacher is basically in charge and children are passive participants. The teacher–child managed whole-group instruction in the preschool classroom has a positive relationship to children's gains in language and literacy skills (Connor, Morrison, & Slominski 2006).

Whole-group overviews and quick reviews provide the daily link to prior learning with new information to sustain gains and deepen comprehension. According to Godwin et al. (2016), when instruction duration increases from 10 to 30 minutes, on-task behavior declined, and during the whole-group instruction, the on-task behaviors were lower than in other instructional formats. As a result, in *Ready to Advance*, the whole-group lessons are relatively short, introducing the topic or skill succinctly, identifying the link to prior learning, and then follow-up instruction occurs in the small-group instruction, at both teacher and work tables, and is reinforced during purposeful play in the learning centers.

Small-group instruction in *Ready to Advance* allows, for instance, differentiation of instruction, additional targeted practice at different levels for different groups of children, collaborative conversations, feedback at point of need, and intentional instruction and guided practice for social competencies. Chien et al. (2010) found children made better progress when they were in classrooms where teachers had planned activities that were taught in small groups of children with the teachers providing support to children as they learned difficult skills.

Each unit of *Ready to Advance* not only lays out the daily activities, both whole and small group, but also makes available additional instructional and practice activities that can be used to reteach or extend learning. The assessments included with *Ready to Advance* inform the planning, instructional, and practice activities as well as provide progress reporting. The assessment options with *Ready to Advance* include: Early Learning Screener; monthly curriculum-based unit checklists; and a comprehensive benchmark assessment that may be completed three times per year to estimate and report progress and achievement.

Finally, *Ready to Advance* and the professional development that supports *Ready to Advance* provides additional resources to help teachers enhance instructional effectiveness. The Teacher's Resource System (TRS) provides teaching tips at the point of need to meet the needs of all children. The Classroom Management Guide details how to implement effective routines and procedures to achieve an environment that is predictable and orderly. The Emergent Writing Guides provide details of the instruction that develops foundational skills for written expression, including body posture, grip, alignment, and orientation to draw, paint, and print letters and numerals. The professional development training provided by expert consultants prepares teachers to pull all the parts together into a classroom where children feel comfortable and ready to learn.

Whole-group overviews and quick reviews provide the daily link to prior learning with new information to sustain gains and deepen comprehension.

Jones and Doolittle (2017) suggest that social emotional learning (SEL) "skills may be just as important as academic or purely cognitive skills for understanding how people succeed in school, college, and careers" (p. 5).

Creating a more positive emotional climate

A positive emotional climate and a less stressful classroom climate were linked in a study by Ursache, Blair, and Raver (2012) to results where "treatment group children scored significantly higher on a standardized batter of EF [executive functions] assessments and were rated by the assessor as showing less impulsivity and greater attention" (p. 126) after one year of implementation. The Ursache et al. results were based on multiple self-regulation factors, including the role of classroom management. Another factor was an increase in both teachers' and children's positive engagement.

Converging evidence, reported by Fuhs, Farran, and Nesbitt (2013), suggest there is an association between classroom characteristics and children's achievement. Rimm-Kaufman, Curby, Grimm, Nathanson, and Brock (2009) found "classroom quality, particularly teachers' effective classroom management, was linked to children's greater behavioral and cognitive self-control, children's higher behavioral engagement, and less time spent off-task in the classroom" (p. 958). Emmer and Stough (2001) suggested a high-quality classroom was well-managed, meaning potential problems were handled prior to problems arising by establishing stable routines and keeping children involved in inherently interesting activities.

Jones and Doolittle (2017) suggest that social emotional learning (SEL) "skills may be just as important as academic or purely cognitive skills for understanding how people succeed in school, college, and careers" (p. 5). Jones and Doolittle state "at its core, SEL involves children's ability to learn about and manage their own emotions and interactions in ways that benefit themselves and others, and that help children and youth succeed in schooling, the workplace, relationships, and citizenship" (p. 4). Further, Jones and Doolittle identify elements needed to effectively manage emotions and social interactions to include "attention and the ability to solve problems; beliefs about the self, such as perceptions of competence and autonomy; and social awareness including empathy for others and the ability to resolve conflicts" (p. 4).

Application in *Ready to Advance*

Ready to Advance provides for a positive emotional climate in multiple ways. Not only are classroom management routines and procedures embedded in the daily lessons, but there is an extensive guide, the Classroom Management Guide, that describes, in detail, the optimal framework and structures that work best for preschool classrooms. This resource allows teachers to develop the routines and procedures necessary to achieve an emotionally supportive classroom where children can be stress-free and supported, while focusing on engaging instructional and collaborative activities. Teachers are encouraged to examine routines across time and change routines as children mature and grow.

During the course of each *Ready to Advance* unit, one of the lap books is directly related to age-appropriate social emotional skills. These books are the starting

point for frequent practice opportunities for children related to self-regulation, making responsible decisions, showing empathy for others, and engaging in respectful communication. Additional targeted practice of social emotional skills occurs during the small-group time. The flexible group membership enables the teacher to create groups where children can work together collaboratively. The small-group time is also a time for teachers to share conversations with children, demonstrating and practicing effective, positive communication teacher-to-child and child-to-child.

While social emotional learning can occur at any time in the preschool classroom, having times when social emotional learning is a focus ensures children will have multiple examples of positive social emotional behavior and ample opportunities to practice these behaviors. The teacher is a very important component of children's social emotional learning. Children who are strong in key social emotional skills (listening attentively, following directions, managing emotions, dealing with conflicts, and working cooperatively with peers) are generally less disruptive and better able to benefit and take advantage of classroom instruction (Jones, Bailey, & Jacob 2014). Jones et al. (2014) also suggest children who struggle in these key skill areas are more likely to be off-task, engaged in conflict with peers and adults, leading to less learning time for themselves and others. The way the teacher reacts will make a tremendous difference in what children learn, both positive and negative.

The professional development and coaching provided with *Ready to Advance* focus on training and support of teachers to effectively support children's social emotional development. According to Jones, Bouffard, and Weissbourd (2013), social emotional learning influences the quality of the teacher–child relationship. A couple of the factors involved in social emotional learning include the teachers' ability to regulate their own emotions, and children watching how teachers handle different situations, such as frustration, staying focused in the face of distractions, and being able to shift tactics if needed.

Children who are strong in key social emotional skills

- listening attentively
- following directions
- managing emotions
- dealing with conflicts
- working cooperatively with peers

are generally less disruptive and better able to benefit and take advantage of classroom instruction (Jones, Bailey, & Jacob 2014).

Fostering higher levels of child involvement

Farran, Meador, Christopher, Nesbitt, and Bilbrey (2017b) indicated children's involvement in learning "captures how focused and engaged the child is in whatever learning-related activity he or she is doing" (p. 9). Involvement is rated as high when the "child is intensely focused on the activity and displays genuine involvement in learning" (Farran et al. 2017b, p. 9). According to Farran et al. (2017b), distracting the child would be difficult as he or she seems oblivious to noise and the behaviors of the other children, and is concentrating and seriously trying to complete the activity. The involvement is rated as low when the child is "clearly not interested in the activity" (Farran et al. 2017b, p. 10). In this case, according to Farran et al. (2017b), this child is truly off-task, not attending at all, or disruptive. The child could be staring off into space, just sitting there, or thoughtlessly looking at what other children are doing.

"Instruction that explicitly teaches children the code-based characteristics of written language, including both phonological and print structures" (p. 94), is considered high-quality literacy instruction for a preschool class by Hamre et al. (2012).

Hamre et al. (2012) identify content-related interactions that "foster children's language and early literacy development" (p. 94), including "use of open-ended questions, expansions, advanced linguistic models and recasts" (p. 94) and indicate these interactions are "associated with positive language achievements in young children" (p. 94). "Instruction that explicitly teaches children the code-based characteristics of written language, including both phonological and print structures" (p. 94), is considered high-quality literacy instruction for a preschool class by Hamre et al. (2012). Bierman et al. (2008) report the use of interactive book-reading has "proven effective in promoting richer conversational exchanges in the classroom and gains in child vocabulary and oral comprehension skills" (p. 1806). Palermo and Mikulski (2014) suggest "positive social interactions with classmates provide a sense of relatedness or belonging that facilitates learning by promoting classroom engagement" (p. 627).

Fuligni, Howes, Huang, Hong, and Lara-Cinisomo (2012) identified two profiles of preschool classrooms that characterized time spent engaged in child- and teacher-managed contexts: high free-choice and structured-balanced. In the high free-choice profile, the majority of the school day was spent in child-managed free-choice context. In the structured-balanced profile, there was basically equal proportions of child-managed and teacher-managed small- and whole-group activities. Fuligni et al. verified that the time children were engaged in learning activities varied between these two profiles and that in the structured-balanced classrooms, there was more engagement in language activities that was positively associated with higher language scores, both within the time the engagement occurred and in later grades.

Goble et al. (2016) extended the child- and teacher-managed contexts, identified by Fuligni et al. (2012), to include examination of the nature of the time spent with teachers in the two contexts and how the time spent was related to children's skill development. The findings indicated positive outcomes related to children's skill development when teachers were directly involved with children in either context, child- or teacher-managed. Children benefit from the time spent with teachers, including the times when children are self-selecting activities.

The classroom needs to be inspiring and orderly in the way it looks and in the way the classroom is organized through positive classroom management practices.

Research indicates engaging children in activities, whether children are choosing the activities or teachers are choosing the activities, is about the activities, the classroom environment, the children, and the teachers. Teachers need to be engaged so they can select the activities that are appropriate to the children and their learning needs. Teachers need to be informed enough to be able to make decisions on changes that need to be made to meet the needs of children and when they need to be made. The classroom needs to be inspiring and orderly in the way it looks and in the way the classroom is organized through positive classroom management practices. Children need to be able to access the instruction being presented. If the instruction is beyond current capability, the lesson will fail. Finally, the activities need to be developmentally appropriate for the children being taught. Lessons above children's ability or below children's abilities could be wasted effort.

Application in *Ready to Advance*

Ready to Advance contains activities that encourage shared talking, reading, and writing, and collaborative participation. Teachers are provided with clear, comprehensive lessons that follow an evidence-based learning progression (Hess 2010; Hess & Kearns 2010, 2011). The lessons provide information at point of use to modify or augment lessons based on children in the whole or small groups. Materials are bright, colorful, interesting, and age-appropriate, and will generate children's interest and curiosity. The books used in the read-aloud activities and the instructional material provided to the teacher will enable a richer conversational exchange, keeping children engaged.

Ready to Advance initially focuses on social emotional adjustments, communication, and learning the classroom management routines and procedures during Unit 1. This initial focus helps children have a higher level of comfort and sense of belonging before moving on to academic content introduced in Unit 2. The spiraling curriculum design and use of thematic units with intentional learning activities provide repeated exposures to content and skills across all domains week-to-week and unit-to-unit.

The use of developmental learning progressions (Hess 2010; Hess & Kearns 2010, 2011) ensures instruction and practice are scaffolded from easy to more difficult and from shorter to longer activities, allowing children to increase their involvement as content knowledge and skills are strengthened. Books used in *Ready to Advance* are written specifically for the program with vocabulary words, concepts, and skills aligned with instructional purposes. The Emergent Writing Guides in *Ready to Advance* develop the foundational skills for written expression. *Ready to Advance*, as described above, is designed to increase the involvement of children from the beginning of the year to the end, as the children change and mature.

Teachers listening more to children

Children learn new words through oral language during activities such as mealtime conversations, daily activities and chores, and play (Neuman, Newman, and Dwyer 2011). However, these everyday conversations do not provide the wider and more sophisticated vocabulary children need to learn. It certainly follows that just hearing words without being able to use and practice those words will not be helpful. Farran et al. (2017a) found teachers talk about 70 percent of the time during the preschool class time, which means they listen about 30 percent of the time. Children, not surprisingly, talk about 24 percent of the time, of which 6 percent is spent talking to other children. Children need more time to practice not only the vocabulary being introduced, but also to practice speaking as a part of social skills.

Early et al. (2010) state "teachers play a critical role in the classroom, both in terms of selecting settings and activities for children and in terms of their interactions with children" (p. 179). Teachers' interactions with children include

Early et al. (2010) state "teachers play a critical role in the classroom, both in terms of selecting settings and activities for children and in term of their interactions with children" (p. 179).

The results "confirm that for young children, learning occurs via interactions, and high-quality emotional and instructional interactions are the mechanisms through which pre-K programs transmit academic, language, and social competencies to children" (Mashburn et al., p. 744).

two types: scaffolded and didactic. According to Early et al., both types of interaction have a place because different children learn in different ways, and different content needs to be delivered in different ways.

Didactic instruction is more rote in nature and involves providing information from teacher to children (Early et al. 2010). Didactic instruction includes techniques such as modeling, practice, explanation, recitation, and closed-ended questioning. According to Early et al., scaffolding instruction is usually preferred to help children understand new information and skills more deeply. Scaffolding occurs when the "teacher is aware of the child's knowledge, skills, and interests and provides new challenges and information that are beyond what the child can currently accomplish on his/her own but within his/her reach with adequate support" (Early et al., p. 179). In their study, Early et al. found teaching interactions were three times more likely to be didactic than scaffolded.

Mashburn et al. (2008) conducted a study that examined development of academic, language, and social skills among 4-year-olds in publicly supported Prekindergarten programs. The results "confirm that for young children, learning occurs via interactions, and high-quality emotional and instructional interactions are the mechanisms through which pre-K programs transmit academic, language, and social competencies to children" (Mashburn et al., p. 744).

Teachers and other adults in preschool classrooms talk to and listen to children all through the day. There are times when teachers and children have structured interactions that provide excellent opportunities for teachers to not only convey information to children, but also to listen to children. Those include read-aloud activities, especially including informational text discussions, conversations in small-group activities, and during vocabulary instruction.

Application in *Ready to Advance*

In each *Ready to Advance* unit, questions are used as a central focus for discussions. These questions are designed to build critical thinking and cognitive rigor. Over time, as children learn to speak in complete sentences, teachers are encouraged to gradually turn over the responsibilities for answering those questions to the children. During the whole-group read-aloud activities and small-group differentiated discussions, teachers have opportunities to listen to what children are saying. During both the whole- and small-group activities, teachers are encouraged to have conversations with children that can build vocabulary, background knowledge, and social emotional skills. Additionally, allowing children to convey stories that go along with their drawings provides additional opportunities to listen to children.

Creating more math opportunities

Farran et al. (2017a) identified two types of mathematics within the classroom: math naming and math concepts. Math naming was related to activities where the focus was recognizing numbers and shapes. Math concepts was related to

activities such as comparing numbers, operations, comparing shapes, composing shapes, spatial reasoning, measurement, and patterning. Farran et al. (2017a) combined these two categories when they captured the learning activity.

The report, *Mathematics Learning in Early Childhood: Paths Toward Excellence and Equity* (National Research Council 2009), was written by the Committee on Early Childhood Mathematics. The Committee was charged with providing a summary of the existing research so appropriate mathematics learning objectives could be established for preschool children. The report confirms "virtually all young children have the capability to learn and become competent in mathematics" (National Research Council, p. 1). Further, experts have come to consensus that there are two areas of math that are particularly important for preschool children to learn: 1) number (whole number, operations, and relations) and 2) geometry, spatial thinking, and measurement, with the most time being spent on number. The report indicates regular instructional time should be devoted to mathematics instruction.

The report confirms "virtually all young children have the capability to learn and become competent in mathematics" (National Research Council, p. 1).

Numbers are described as "abstractions that apply to a broad range of real and imagined situations" (National Research Council 2009, p. 22). To understand numbers, the National Research Council suggests children should understand "concepts of quantity and relative quantity, facility with counting, and [have] the ability to carry out simple operations" (p. 22). The National Research Council indicates geometry for preschool children includes the study of shapes and space. Measurement is about determining size and other attributes of shapes, objects, regions, and quantities of things.

Clements, Sarama, and Germeroth (2016) reviewed the research results regarding the efforts to develop the executive function skills that play a role in learning. In particular, Clements et al. looked at the link between executive function and mathematics. Mathematics instruction generally requires higher-order skills and thinking, which is also associated with executive function skills. While there has not been conclusive evidence that one method of developing executive function works better over another, Clements et al. suggest "high-quality mathematics education may have the dual benefit of teaching an important content area and developing at least some EF [executive function] processes" (p. 86).

Application in *Ready to Advance*

Ready to Advance includes activities and instructional support to develop mathematical concepts, number sense, skills, and vocabulary in the daily lesson plans. Lessons include modeling, feedback, and interactive practice to ensure development of conceptual and procedural knowledge of what is being learned, why it is useful, and how it can be applied. Mathematics instruction is integrated into every daily lesson in *Ready to Advance*. Additionally, one of the three lap books included in every unit has a math and science focus that will be read for its information and then used for problem set-up with practice.

Mathematics instruction is integrated into every daily lesson in *Ready to Advance*.

Mathematical concepts in *Ready to Advance*, however, are not confined to just the daily math activities and instruction in each lesson but are also: integrated with

science content; discussed during read-aloud activities and in whole- and small-groups; incorporated into art projects, physical development, and other areas as opportunities for additional practice; and reinforced in the learning centers. Mathematical instructional routines provide explicit directions for skill development and are available in the Instructional Routines flip chart for easy access.

Hamre et al. (2012) state, "there is now compelling empirical evidence that one of the most salient aspects of early childhood programs' effects on children's development is the nature and quality of teachers' interactions with children" (p. 90).

Fostering social learning interactions

Hamre et al. (2012) state, "there is now compelling empirical evidence that one of the most salient aspects of early childhood programs' effects on children's development is the nature and quality of teachers' interactions with children" (p. 90). Bulotsky-Shearer et al. (2012) identify one way to mitigate the negative influence of early risks on educational outcomes as "children's active engagement in high-quality social interactions with peers" (p. 225). Farran et al. (2017b) indicate learning interactions are associative and cooperative, defined as follows:

- **Associative:** When children (with or without the teacher) are interacting in the context of an activity or task that does not have predetermined rules. Children can be in an associative activity with adults as well as children.
- **Cooperative:** Cooperative interactions are characterized by group identity, rules, and organization. In general, in this state, children are following predetermined rules and those rules govern the steps or sequence of a child's behavior. These interactions can include: formal games, competitions aimed at winning something, and groups formed by children or by the teacher for doing things together in sequence with a clear goal (Farran et al. 2017b, p. 8).

Teacher–child interactions have been documented to promote children's social and academic development (Hamre et al. 2012). More positive behavior and learning are associated with teachers' efficient use of time and consistent exposure to instructionally rich activities (Early et al. 2010). Hamre, Hatfield, Pianta, and Jamil (2014) found the teachers who were more responsive, had positive classroom management, and provided cognitive stimulation had children who demonstrated greater gains in cognitive, self-regulatory, and relational functioning behaviors.

Hamre (2014) states "responsive teachers are highly engaged with children, attuned to their cues and needs, and able to respond in individualized ways that foster social, behavioral, and academic development" (p. 224). Hamre provides the following examples:

> To support behavioral regulation, a responsive teacher notices when a child is starting to lose focus and steps in quickly to re-engage the child. Within the cognitive domain, a responsive teacher notices that a child does not understand a concept introduced to the whole group and finds the time to interact with him or her one-on-one to provide individual scaffolding (Hamre, pp. 224–225).

Bulotsky-Shearer et al. (2012) identified "children who play effectively and cooperatively with peers as resilient, highly engaged in classroom learning activities and leaders among their peers" (p. 227). Bulotsky-Shearer et al. continue by stating, "positive peer interactions are associated with the development of many social and regulatory skills that promote learning, such as initiative, competence, motivation, attention and persistence, ability to approach new situations, and emotion regulation" (p. 227). Additionally, the behaviors that interfere with learning, such as aggressive, inattentive, shy, and withdrawn behavior problems, are reduced for children who are able to play effectively and cooperatively.

According to Acar, Rudasill, Molfese, Torquati, and Prokasky (2015), peer, or child–child, interactions in early childhood refer to exchanges, both interactive and reciprocal, between children who share the same context, for instance, the classroom setting. Acar et al. identified the "ability to control, regulate, sustain, and shift attention as needed according to the social demands of the situation" (p. 481) as attentional focusing. The study conducted by Acar et al. found when children were able to attend to environmental cues, they were better able to make their behaviors match the demands of the situation. Additionally, attentional focusing was related to more sociability and assertiveness in child-to-child encounters.

Peer interactions in intentional, flexible groupings can be beneficial to children when groups are created with members who have different abilities. Palermo and Mikulski (2014) conducted a study to understand the effect of positive peer interactions on English vocabulary and letter-word skills of dual language learners, specifically Spanish-speaking preschoolers, across the school year. Findings indicated "children who exhibited high levels of positive peer interactions in the fall were likely to perform better on tests of English vocabulary and letter-word skills in the spring than those who exhibited lower levels" (Palermo & Mikulski, p. 632). Additionally, findings also indicated "linguistic experiences with peers in English correlate positively with Spanish-speaking preschoolers' English vocabulary knowledge" (Palermo & Mikulski, p. 633), which is consistent with the idea that it is important to provide opportunities to use the second language in meaningful contexts instead of just hearing it, as suggested by Swain (1985). Palermo and Mikulski indicate teachers may need to encourage the positive social interactions between peers who speak different languages.

Application in *Ready to Advance*

Ready to Advance was created with the importance of social learning interactions in mind. Much of the responsibility of creating flexible groups and identifying opportunities to step in and help children interpret social situations is in the hands and the judgment of teachers. Having a program like *Ready to Advance*, and the professional development opportunities associated with *Ready to Advance*, helps teachers in multiple ways ensure children are provided with both associative and cooperative social learning opportunities.

The routines and procedures in *Ready to Advance* establish predictable order and allow teachers to make efficient use of the time available. The consistent,

The study conducted by Acar et al. found:

- When children were able to attend to environmental cues, they were better able to make their behaviors match the demands of the situation.
- Additionally, attentional focusing was related to more sociability and assertiveness in child-to-child encounters.

well-designed lessons, making use of whole- and small-group activities on a daily basis, not only provide opportunities for children to have collaborative conversations with teachers and peers, but also include instructionally rich and cognitively stimulating activities. The structure of the positive classroom management embedded in *Ready to Advance* establishes a calm, orderly, and well-run classroom environment, and also encourages both associative and cooperative interaction with teachers and peers during small group and in learning centers.

The children in *Ready to Advance* classrooms have opportunities to be assigned as work partners and small-group team leaders. They can choose their learning center and the children they want to learn with. These choices are not assigned or permanent by design and can change daily. Part of the classroom management identifies jobs that encourage children to serve others in the classroom and develop leadership skills. The classroom jobs rotate on a regular basis, allowing everyone to have a turn, thus fostering social learning opportunities and interactions as well as a sense of achievement and pride for children in the classroom.

Providing more sequential activities

Farran et al. (2017b) define nonsequential and sequential activities as follows:

- **Nonsequential:** Child is involved with an activity or materials but not following a predetermined set of steps. An observer would have a difficult time predicting what comes next, and the activity itself is open-ended.
- **Sequential:** Child is involved with activities or materials that involve a sequence of steps. Sequential activities may include activities without objects if there are turns and organization to the activity. When children are engaged in sequential activities, the observer can make predictions about what will come next (Farran et al. 2017b, p. 7).

There are two ways to look at these definitions provided by Farran et al. (2017b): on a micro level, relating these concepts to individual activities, and on a macro level, relating these concepts to combinations of activities that form a lesson or unit. Both of these levels will be explored.

Nesbitt, Farran, and Fuhs (2015) identify sequential learning activities as those that are "cognitively demanding activities that typically require the completion of a series of steps or operations" (p. 866). This could include many activities in the preschool classroom. Nesbitt et al. provide a good illustrative example of a cognitively demanding sequential activity: patterning. Patterning requires the recognition, description, extension, and finally, creation of repeated patterns. These sequential learning activities require and facilitate the growth of executive function, or cognitive control capacities, such as working memory, attention set-shifting, and inhibitory control, which allow children to "organize their thinking and behavior with increasing flexibility, decrease their reactive responding to contextual cues and contingencies, and engage in self-regulated and rule-governed behavior" (Welsh, Nix, Blair, Bierman, & Nelson 2010, p. 44).

Nesbitt et al. (2015) bring together the recent definitions of school readiness, indicating that beyond the language development, academic knowledge, and physical motor development, there is another area of importance: children's ability to manage emotions and behaviors. Nesbitt et al. studied the academic achievement of preschool children based on the entering levels of ability to manage emotions and behaviors, also known as executive function skills. They found "executive function skills are important for understanding how children respond to learning opportunities in classroom settings" (Nesbitt et al., p. 875). Nesbitt et al. further noted the children who entered preschool with less well-developed executive function skills found it harder to participate in learning opportunities.

Blair and Diamond (2008) state the ways children learn academic content requires three things: 1) help to acquire the capacity to persevere in working at a task; 2) development of the skills to sustain and focus their attention; and 3) developing the capacity to hold information in mind long enough to relate one idea or piece of information to another. Blair and Diamond conclude "if they [children] believe they are capable as learners and if they are motivated learners who find learning to be fun, they will go to the effort to acquire academic content" (p. 909).

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Application in *Ready to Advance*

On the macro side of sequential activities, *Ready to Advance* was designed following the developmental learning progressions (Hess 2010; Hess & Kearns 2010, 2011), ensuring instruction and practice are scaffolded from easy to more difficult and from shorter to longer activities, helping children gain expertise over time. Daily lessons include purposely planned teacher-led and child-led activities. On the micro side of sequential activities, individual and group activities are scaffolded from easy to difficult, and from achievable to more challenging cognitively, physically, socially, and emotionally. Thus, the activities build knowledge and skills over time, using sequences that are learner-friendly based on age-appropriate expectations for preschool children.

Not only are age-appropriate expectations factored into the academically oriented whole- and small-group instruction in *Ready to Advance*, but also into the routines and transition procedures, which build in complexity across the year. Additionally, suggestions for children who struggle with the academically oriented instruction are provided to the teacher at point of need so modifications and enhancements to instruction can be made.

Reducing transition time

Transition time and classroom routines are often considered together. Activities involving "moving from centers to a whole group, toileting, standing in line, clean-up time, wait time between activities, and/or waiting for materials to be passed out" (Booren, Downer, & Vitiello 2012, p. 525) are considered transition times. Hemmeter, Ostrosky, Artman, and Kinder (2008) identify transitions as "arriving in the classroom, moving from morning meeting to centers, cleaning up after center time to get ready for outdoor play, snack or nap times, and preparing to go home" (p. 1).

Over time, children become comfortable with the transitions, know exactly what is supposed to happen, look forward to the next activity, and feel confident in their ability to move through their day in the classroom.

According to Early et al. (2010), about 34 percent of time spent by children in the classroom is spent in meals and routines, which included transition time.

For quite some time, transitions have been associated with higher levels of stress for children and taking up too much available time in the Prekindergarten class time (Burts, Hart, Charlesworth, & Kirk 1990). Hemmeter et al. (2008) indicate transitions become challenging and stressful when there are "too many transitions, when all the children transition at the same time in the same way, when transitions are too long, and children spend too much time waiting with nothing to do, and when there are not clear instructions" (p. 1). Hemmeter et al. also indicate the challenging behavior displayed by some children during transitions might be due to not understanding what is expected during a transition, especially if expectations change from setting to setting.

Application in *Ready to Advance*

Transitions are part of the larger topic of classroom management routines and procedures. *Ready to Advance* is designed with classroom management routines and procedures embedded within lessons and the daily schedules so expectations are clear, and the classroom environment is predictable and orderly. These routines and procedures are meant to be used consistently to instill development of efficient behavioral habits in children. Both the classroom schedule and the well-defined routines and transition procedures clarify expectations and establish predictable order for children so there is less time spent in transition and less ambiguity as to what children are supposed to be doing, thus decreasing the stress, minimizing the potential for challenging behaviors, and maximizing the efficient use of classroom time.

Transitions in *Ready to Advance* are kept to a minimum using the classroom management tools and recommendations. The rotation system includes time periods for the teacher-led small-group instruction and for the child-directed participation in productive play in learning centers. The classroom organization leads to short transition times between activities. The classroom management tools provide visuals to encourage self-directed participation. American Sign Language (ASL) is used for prompting behaviors, complimenting compliance, building word knowledge, and offering multiple ways to communicate. Over time, children become comfortable with the transitions, know exactly what is supposed to happen, look forward to the next activity, and feel confident in their ability to move through their day in the classroom.

SUMMARY AND DISCUSSION

Ready to Advance provides daily lessons for half- and full-day preschool classrooms across the school year. This program includes skills and content identified from: all the state guidelines and standards for children ages 3–5 years old; the position statements from the National Association for the Education of Young Children (NAEYC)*; and the Early Learning Outcomes Framework from Head Start (2015)**. The program has a recursive, cumulative design so there are sufficient opportunities to practice and learn the foundational skills. Authors of *Ready to Advance*, Drs. Vicki Gibson, Elsa Cárdenas-Hagan, and Karin Hess, bring a wealth of knowledge and years of experience in early childhood education, which was put to use in the development of this program.

Using the framework identified by Farran et al. (2017a) as the guide in this research foundation, not only has the research used in the development of *Ready to Advance* been exposed, but the research has also been exposed in the areas which Farran et al. (2017a) found to be the most beneficial for children in a preschool setting. These included, but are not limited to, a positive classroom environment facilitated by strong classroom management tools; a focus on social emotional learning with ample opportunities for practice and exploration in different types of interactions, including teacher–child and child–child interactions; development of age-appropriate oral language skills through corporative conversations tied to compelling topics in each of the units; and so on.

Recognizing that the teachers are one of the most important elements of a preschool classroom, specific attention has been paid to assisting teachers in three ways: help at point of need; assessments and checklists to help teachers or administrative partners identify important areas related to children's skill development; and professional development opportunities. Help at point of need is provided in the *Ready to Advance* Teacher's Resource System, where quick decisions might need to be made. Assessments and checklists provide information on optimal instruction and implementations, and point to ideas on activities, routines, or modifications. Professional development provides a range of classes by experienced trainers familiar with the preschool classroom that can be customized to assist teachers in reaching all children.

Ready to Advance meets all the standards and the domains of learning through developmentally appropriate instruction. *Ready to Advance* truly is a research-based, comprehensive program built specifically to meet the needs of all preschool children.

Recognizing that the teachers are one of the most important elements of a preschool classroom, specific attention has been paid to assisting teachers in three ways:

1. Help at the point of need
2. Assessments and checklists to help teachers or administrative partners identify important areas related to children's skill development
3. Professional development opportunities

* https://www.naeyc.org/resources/position-statements/dap

** https://eclkc.ohs.acf.hhs.gov/sites/default/files/pdf/elof-ohs-framework.pdf

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