Examining Child-Centered and Direct Instruction Approaches to Early Education

by

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ABSTRACT

The majority of early education programs today use a mix of child-centered and direct instruction approaches. Existing research comparing educational approaches is limited in the degree to which it can inform practice in mixed-method classrooms (i.e., classrooms using both child-centered and direct instruction approaches). The current dissertation extended previous research examining child-centered and direct instruction approaches to early education in two studies. The first study explored how free play and guided play differ from one another. The second study examined how time spent in free play, guided play, and direct instruction in the fall related to children's school readiness in the spring. Both studies were conducted using mixed-method Head Start classrooms. Participants were preschool children (Study 1 n = 284, Study 2 n = 283; M age = 52 months, 48% girls, 70% Mexican or Mexican-American) from lower socioeconomic status families. Observational data were utilized to assess children's time spent in free play and guided play and experiences with activities and peers in each context. Children's academic, affective, and social readiness were assessed through child interviews and teacher reports. The results provided little evidence to support the hypotheses or the popularly held belief that guided play is the most beneficial context for learning and development in early education programs. Findings were discussed in terms of the strengths and limitations of the studies and directions for future research. Importantly, recommendations for policy and practice were provided.

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INTRODUCTION

The quality of children's early education is predictive of their subsequent educational achievement, adult earning potential, and even crime and delinquency (Barnett & Yarosz, 2007; Bruner, Floyd, & Copeman, 2005; Hamre & Pianta, 2001; Ramey & Ramey, 2004). For example, children who receive high-quality early education are 30% more likely to graduate from high school and twice as likely to attend college than children who receive a standard early education (Barnett & Masse, 2005; Reynolds, Temple, Robertson, & Mann, 2001). Thus, it is a high priority to identify early educational practices that result in high-quality instruction and to encourage these practices for all early education programs. This need for high-quality instruction is particularly important for low-income racial/ethnic minority children who are at-risk for falling behind academically in elementary school compared to their more affluent, racial/ethnic majority peers (Lee & Burkam, 2002; Rathbun, West, & Walston, 2004).

Head Start is the nation's largest federally funded program providing early education services to low-income children. In 2007, the Improving Head Start for School Readiness Act required that Head Start programs align program goals, curriculum, implementation, and assessment to the "Head Start Child Development and Learning Framework: Promoting Positive Outcomes in Early Childhood Programs Serving Children 3–5 Years Old." The Framework outlines 11 areas of development in which Head Start children are expected to progress, including physical, academic, affective, and social domains (U.S. Department of Health and Human Services, 2010). Head Start programs are also required to meet their local state-level early learning standards. For

example, one set of state standards defines the structure of early education classrooms and includes the maximum number of children assigned to each class, the allowable ratio of adults to children, and the materials and supports that should be available for families (Bodrova, Leong, & Shore, 2004).

Although such standards-based reform has had some impact, early educational practices appear to be insufficient in that we continue to send many children to elementary school without the necessary skills for success, especially children at-risk (Bruner, Floyd, & Copeman, 2005; Lee & Burkam, 2002; Rathbun et al., 2005). One potential explanation for this lack of effectiveness may be a national focus on *what* children learn and under *what* circumstances rather than *how* children learn. Outcome standards for children define *what* specific behaviors and knowledge children should master by the time they enter kindergarten and *what* program characteristics should be in place; however, guidelines are lacking for *how* children learn these skills or through which educational approach those standards should be implemented. Perhaps, to be effective in affecting *what* children learn, we need to better understand *how* children learn.

Approaches to Early Childhood Education

Two educational approaches have prevailed in the field of early education, the direct instruction approach, in which learning is teacher-directed, and the child-centered approach, in which learning is play-based and child-directed (Stipek, Daniels, Galluzzo, Millburn, & Salmon, 1998). Do children learn best through direct instruction? Or, is play the best context to promote learning? These questions represent a longstanding debate in the field of early education. Although the majority of early education programs today

promote learning through some mix of direct instruction and play, we lack evidence-based guidelines regarding the amount of emphasis that should be placed on each to maximize children's learning and development.

The direct instruction approach to early childhood education is derived from behaviorist theories that suggest that children should master certain basic skills before more advanced learning can occur (Glickman, 1984). Further, it is believed that basic skills are acquired through explicit teaching, repetition, and practice (Engelmann & Carnine, 1982). Accordingly, the direct instruction approach views learning as teacher-directed rather than child-directed. Marcon (1999) described the direct instruction approach as being highly prescriptive in that lessons can be "(a) scripted to assure consistency in presentation across teachers, (b) carefully sequenced with task analysis and a comprehensive system for monitoring student progress, and (c) consistently focused on academic instruction with much of the available school day allocated to practice and drills in reading, language, and math" (p. 1). The direct instruction approach has also been defined as teacher-led sessions utilized to teach basic skills with a focus on repetition and practice in individual, small-, and large-group contexts (Golbeck, 2001).

Grounded in constructivist theories, such as the work of Lev Vygotsky (1896-1934), the child-centered approach to early childhood education views learning as child-directed rather than teacher-directed (Bransford, Brown, & Cocking, 2000; Vygotsky, 1978). Instead of enforcing a core set of basic skills, the child-entered approach is based on the idea that children learn basic skills when they have freedom to think, experience, explore, question, and search for answers about the world through self-directed play. Within this approach two types of play can occur: free play and guided play. In free play,

children can "freely decide" what to do, with whom, and in what area of the classroom (Johnson, Christie, & Yawkey, 1999; Pellegrini, 2009; Sutton-Smith, 2001). In comparison, during guided play, children's natural curiosity, exploration, and play are thought to be guided by the teachers to promote learning (Bredekamp & Copple, 1997). For example, teachers may build on children's self-directed play during guided play by asking questions or expanding on children's observations.

State of the Field

Studies of the child-centered and direct instruction approaches suggest that both the child-centered and direct instruction approaches are effective in promoting children's learning and development (Karnes, Schwedel, & Wiliams, 1983; Marcon 1993; 1999; 2002; Miller & Bizzell, 1983; Miller, Dyer, Stevenson, & White, 1975; Schweinhart, Weikart, & Larner, 1986; Stipek & Byler, 2004). For example, considerable support has been provided for the effectiveness of both approaches on children's development of academic skills (i.e., literacy and mathematics; Karnes et al., 1983; Marcon 1993; 1999; 2002; Miller & Bizzell, 1983; Miller et al., 1975; Schweinhart et al., 1986; Stipek & Byler, 2004). Furthermore, the child-centered approach has been positively related to children's development across both social (e.g., ability to interact with peers) and affective domains (e.g., school liking/avoidance; Marcon 1993; 1999; 2002; Stipek, Feiler, Daniel, & Millburn, 1995; Stipek et al., 1998).

Given the research supporting the effectiveness of both approaches, the majority of early education programs today use a mix of child-centered and direct instruction approaches (Stipek & Byler, 2004). In fact, the majority of Head Start programs follow the Creative Curriculum for Preschool, which suggests that "because children have

unique learning styles and needs" teachers should utilize both direct instruction and child-centered approaches (Dodge, Colker, & Heroman, 2002; p. 173). Unfortunately, a lack of standards dictating how to use both approaches within the same classroom has resulted in inconsistent practices across early education classrooms. Teachers are using both approaches without empirical support regarding how these two approaches impact children's learning within mixed-method classrooms (i.e., classrooms using both child-centered and direct instruction approaches). Research is needed to develop standards and guide practice in mixed-method classrooms so that each approach is utilized in the most effective way to target specific skills.

Limitations of Existing Research

Existing research comparing educational approaches is limited in the degree to which it can inform practice in mixed-method classrooms (i.e., classrooms using both child-centered and direct instruction approaches). Prior research examining child-centered and direct instruction approaches compared the effectiveness of each approach by comparing classrooms (Karnes et al., 1983; Marcon 1993; 1999; 2002; Miller & Bizzell, 1983; Miller et al., 1975; Schweinhart et al., 1986; Stipek & Byler, 2004). For example, a classroom using the child-centered approach was compared to a classroom using a direct instruction approach. Many of these early studies did not make efforts to ensure similarity in schools, classrooms, or teachers on dimensions other than instructional approach. Thus, it is difficult to infer that the group differences observed were attributable solely to type of instruction. Furthermore, these across-classroom comparisons failed to examine the degree to which each approach relates to children's learning and development when both approaches are utilized within the same classroom.

Given that many early education classrooms today tend to use a mixed-method approach, research is needed that identifies how each educational approach promotes the development of specific skills within the same classroom, rather than across classrooms, so that teachers can utilize the appropriate approach when targeting specific skills.

In addition to the issues about comparability of classrooms, there are shortcomings in the previous research on free play and guided play. First, existing studies that examine which type of play is better for learning have failed to detail how free and guided play differ from one another. Second, in prior research comparing child-centered and direct instruction approaches, free play and guided play are grouped together as "play" or the child-centered approach, rather than being considered separately. Thus, although free play and guided play have been compared to each other, the relations between these two types of play and children's learning and development have never been examined in parallel to the direct instruction approach, except when considered jointly as the child-centered approach. Accordingly, research is needed to explore how free play and guided play differ from one another and to examine how these different types of play relate to children's learning and skill development within mixed-method classrooms.

The primary goal of the present dissertation was to conduct research on and to provide empirically based suggestions for early childhood policy and practice regarding the use of free play, guided play, and direct instruction to maximize children's learning and development and improve early education instruction for at-risk children. This goal was addressed with two dissertation studies.

Study 1 - The Child-Centered Approach to Early Childhood Education: A Comparison of Free Play and Guided Play

Prior to examining the degree to which the child-centered and direct instruction approaches facilitate children's learning, research is needed to gain a deeper understanding of the experiences that children have in free play and guided play within the child-centered approach. Although theory and research suggest that teacher presence, or guided play, is more productive for learning than free play (Barnett et al., 2008; Bodrova & Leong, 2009; Diamond, Barnett, Thomas, & Munro, 2007; Vygotsky, 1978), we lack clarity regarding the similarities and differences between these contexts. Such research is needed to determine whether free play and guided play lead to similar or different experiences with activities and peers.

It is important to examine similarities and differences in these contexts because various playful learning experiences may differentially lead to learning-related benefits. That is, certain activities or peer interactions lead to more positive, less positive, or simply different outcomes. For example, play with blocks is thought to promote math-related skills while play with books is thought to promote literacy-related skills (Bredekamp & Copple, 1997; Dodge et al., 2002; Verdine, Golinkoff, Hirsh-Pasek, & Newcombe, 2014). Thus, if it were discovered that children engage with blocks more during free play, teachers may use free play when they want to target math skills. Blocks are not inherently better than books, but rather more beneficial for targeting specific math-related skills.

Some experiences, however, are inherently better than others. For example, studies show that high quality engagement with activities (e.g., constructive versus

passive) and peers (e.g., social versus parallel play) is related to positive cognitive and social development (Connolly & Doyle, 1984; Dunn, 1993). Furthermore, research suggests that greater diversity in children's play with activities and peers is more beneficial for learning than a narrow range of experiences with activities and peers (DiDonato, Martin, Hessler, Amazeen, Hanish, & Fabes, 2012). Thus, identifying the playful learning context, free play or guided play, in which children experience higher quality and greater diversity in play with activities and peers is just as important as identifying the specific activity or peer experiences that are likely to occur within free and guided play. By gaining a deeper understanding of free play and guided play, we could provide teachers with information for how to capitalize on the most beneficial experiences in each context. Accordingly, the first paper of the dissertation is a descriptive study of the two playful learning contexts used within the child-centered approach, free play and guided play. Study 1 was designed to illuminate how often children engage in these contexts in classrooms today and the similarities and differences of children's experiences with activities and peers in each context.

Study 2 - Early Educational Approaches in the Modern Classroom: Examining Longitudinal Relations between the Child-Centered and Direct Instruction Approaches on Children's School Readiness within Mixed-Method Head Start Classrooms

Building on this descriptive study, the second paper of the dissertation examines longitudinal relations of time spent in the child-centered contexts of free play and guided play, and direct instruction, with a variety of Head Start children's school readiness outcomes. Although there is no single definition of school readiness, it is generally

agreed upon that children's school readiness is comprised of academic (i.e., literacy and mathematics skills), affective (e.g., school liking/avoidance), and social (e.g., ability to interact with peers) competencies (Magnuson, Ruhm, & Waldfogel, 2007). The child-centered and direct instruction approaches may influence the various dimensions of school readiness, including academic, affective, and social readiness, in different ways. Accordingly, it is important to understand the degree to which at-risk children develop various skills through child-centered contexts (free play and/or guided play) and through direct instruction.

STUDY 1

The Child-Centered Approach to Early Childhood Education: A Comparison of Free Play and Guided Play

Educators who adopt a child-centered approach to early education view children's play as "the preeminent educational activity of early childhood" because play is thought to support the learning of important school readiness related skills (Berk & Winsler, 1995, p. 57). For example, as children make substitutions during play (e.g., using a cardboard box to represent a bus), children gain the cognitive ability to separate the meaning of an object from the concrete object. Recently educators and academic scholars have begun to draw distinctions between two types of play within the child-centered approach: free play and guided play. Free play is voluntary and child-driven, such that children independently decide what to do, with whom, and in what area of the classroom. Guided play is also child-driven; however, during guided play, teachers are present and they are thought to guide children's exploration and learning by asking questions and expanding on children's own observations (Bransford, Brown, & Cocking, 2000; Vygotsky, 1978).

There is very little empirical research examining free play and guided play. Of that research, no studies have been conducted in which children's experiences during free play and guided play have been observed directly. The few research studies that have examined free and guided play were experimental studies that compared an intervention classroom in which teachers were instructed about how to guide children's play to a control classroom (in which there may be some levels of guided play, but teachers were not given any instruction; e.g., Tools of the Mind; Bodrova & Leong, 2009). These

studies show that when teachers were instructed about how to guide children's play, children fare better than their peers in classrooms in which teachers were given no instruction. These studies fail to show, however, the naturally occurring differences in free play and guided play.

The goal of the current research was to use observational data to gain a clear understanding of the similarities and differences between free play and guided play. It is important to first define free play and guided play. The majority of observational research examining natural variability during children's play examines teacher presence or a lack of teacher presence (Kontos & Keyes, 1999; Oettingen, 1985; Serbin, Connor, & Citron, 1981; Tomes, 1995). Using this framework as a guide, the following definitions were used for the purpose of this study: free play was defined as any time children were engaged in play that occurred away from the teacher and did not include any teacher-child interactions; guided play was defined as play that occurred within a 5-foot radius of the teacher or during direct teacher-child interactions.

There are four important aspects of free play and guided play that were observationally explored in the present study. First, the study explored how much time children spent in each type of play and in direct instruction in order to better characterize the current use of free play and guided play in early childhood classrooms. Second, the present study compared the types of playful learning experiences with activities and peers that occur most frequently in free play and guided play. Third, the quality of children's activity engagement and peer interactions was compared across free play and guided play. Finally, the present study compared free play and guided play to explore in which

context children experienced the greatest diversity of involvement with activities and peers.

How Much Time during Preschool do Children Spend in Free Play and Guided Play?

Research has demonstrated that children's success throughout elementary and secondary school is related to the play-based learning environments of preschool (Jimerson, Egeland, Sroufe, & Carlson, 2000). A significant portion of children's time in preschool is spent engaged in play with activities, peers, and teachers. In a study examining over 700 early childhood education classrooms across 11 states, and using a series of 20-second observations of individual children collected over 1-2 days, Chien and colleagues (2010) showed that children spent approximately 30% of their time in play. Their remaining time was divided across direct instruction activities (i.e., individual, small group, large group; 50%) and classroom routines such as meals, transitions, and clean-up (20%). Notably, there was considerable variability in the amount of play time children experienced with some children spending only 10% of their time in play and others spending 40% of their time in play.

Two types of play can be observed in preschool classrooms – free and guided. During free play, children can freely decide what to do, with whom, and in what area of the classroom. Free play is often defined as child-directed/voluntary, fun, flexible, and has no extrinsic goals (Johnson, Christie, & Yawkey, 1999; Pellegrini, 2009; Sutton-Smith, 2001). In guided play, children's natural curiosity, exploration, and play is thought to be guided by the teacher to promote learning (Fisher, Hirsh-Pasek, Golinkoff, Berk, & Singer, 2011). In the classroom, free play and guided play often occur at the same time.

Because teachers can only be in one place at a time, during any given play period we would expect to see some children engaged in guided play with the teacher, while other children are playing away from the teacher or in free play. It is also possible that all children are playing in free play while the teacher is engaged in other activities such as lesson preparation. It is far less likely that all children could be actively engaged in guided play at the same time.

The degree to which children can be observed engaging in free play versus guided play likely varies both within classroom (i.e., due to child-level variability) and across classrooms (i.e., due to teacher-level or classroom-level variability). For example, research has shown girls tend to engage in small peer groups, in structured activities, and near teachers; in contrast, boys tend to engage in larger peer groups, in unstructured activities, and farther away from teachers than girls (Fabes, Martin, & Hanish, 2003; Maccoby & Jacklin, 1987; Serbin et al., 1981). Accordingly, we might expect there to be some variability within a single classroom in the degree to which children spend time in free play or guided play due to child gender. Other child-level characteristics may also impact within class variability. For example, children who exhibit behavioral problems may elicit more teacher attention during play because the teacher feels that there is a need to manage that child's behavior. Alternatively, certain children may have closer relationships with teachers and thus teachers may gravitate towards those children during play. There may also be variability in the degree to which children spend time in free play or guided play across classrooms due to differences in teaching theories. Some teachers may value guided play, or teacher presence during play, more than others and this could affect children's opportunities to engage in guided play.

Research is lacking that examines the amount of time that children spend in free play and guided play within preschool classrooms. Although the study by Chien and colleagues (2010) provides insight regarding the amount of time children spend engaged in play during preschool (30%), no estimates regarding the division of time between free and guided play were provided. For example, it is unknown if the proportion of time children spend playing near the teacher in guided play and away from the teacher in free play is equivalent, or if there is an imbalance favoring one or the other. Similarly, it is unclear if the ratio of free play to guided play is the same for all children. To better characterize the balance of free play and guided play both within and across preschool classrooms, research is needed that explores the current distribution of children's time during play. Accordingly, the present study explored the distribution of children's time spent in free play and guided play within and across classrooms.

What Types of Learning Experiences Occur Most during Free Play and Guided Play?

In addition to the lack of research examining time spent in free play versus guided play, research is lacking regarding the learning experiences that are likely to occur in these two contexts. Playful learning experiences with activities and peers are considered central in preparing children for the social and academic demands of formal school (Vygotsky, 1978). In early education classrooms, there are numerous learning materials and social situations for children to explore. For example, children have opportunities to play with a variety of developmentally appropriate toys and materials, including blocks, art equipment, dramatic play objects (e.g., kitchen materials, dress up), toys, games, books, writing materials, math and science materials, sensory materials, computers,

musical instruments and more (Bredekamp & Copple, 1997; Dodge et al., 2002). Furthermore, children have opportunities to play with a variety of peers, including same- and other-sex peers, and these peer play interactions can vary in group size (i.e., dyad versus group).

Research suggests that children's experiences with different activities and peers provide different learning opportunities and foster different developmental skills. For example, playing with blocks provides opportunities for children to learn about sizes, shapes, numbers, order, area, length, patterns and weight; whereas play with books and writing tools promotes literacy skills such as learning to read and write (Bredekamp & Copple, 1997; Dodge et al., 2002). In this example, blocks are not inherently better than books, but rather more beneficial for targeting specific math-related skills; just as books are more beneficial for targeting specific literacy-related skills. Similarly, children's play with different types of peers likely provides opportunities for skill development in different domains. For example, research has shown that preschool girls tend to engage in small peer groups and in structured activities that require quiet conversation and maintained attention (Bredekamp & Copple, 1997; Maccoby, 1990; Maccoby & Jacklin, 1987). In contrast, these researchers showed that boys tend to engage in larger peer groups and in unstructured activities that are typically associated with large motor development and spatial skills. Thus, play with girls versus boys likely lead to the development of different but equally beneficial skills.

Given that certain experiences may be more beneficial for targeting specific skills, it would be useful to have a clearer understanding of which activities and peers children engage with during free play and guided play so that teachers may use that

knowledge to promote skill development. Research suggests that children's behavior is different when teachers are present during play (Kontos & Keyes, 1999; Oettingen, 1985; Serbin et al., 1981; Tomes, 1995). For example, it has been demonstrated that teacher presence in activity areas is positively related to children's engagement in those activities (Oettingen, 1985; Serbin et al., 1981; Tomes, 1995). In other words, when teachers were present in specific play areas, children were more likely to play in those areas, suggesting that teacher location has an effect on children's activity engagement. Thus, teacher presence during guided play likely contributes to differences in the type of activities and peers that children play with in free play versus guided play; however, research is needed to explore these similarities and differences.

Which Form of Play Promotes Higher Quality Activity Engagement and Peer Interactions?

Although some playful learning experiences are not inherently better than others, some experiences are more beneficial than others. Specifically, the ways children engage with activities and interact with peers can be categorized as higher or lower quality. Howes and colleagues have identified four distinct levels of engagement with activities that progress in order from lowest quality of engagement to highest quality of engagement (Howes & Stewart, 1987). This system suggests that passive play (e.g., just holding or carrying an object/toy around) is the lowest level whereas creative play (e.g., using objects/toys in creative or unintended ways, such as using a stick as a sword) is the highest level. Using this system, research has shown that higher levels of quality in children's activity engagement (i.e., creative versus passive) have been related to higher levels of cognitive skill development (Dunn, 1993). Consistent with activity engagement,

Howes and colleagues have also identified a quality of peer interactions hierarchy in which onlooking play (e.g., watching another child or other children play but not involved in the play) is the lowest level and social play (e.g., direct peer interaction with one or more children in an activity) is the highest level (Howes & Matheson, 1992). High quality peer play interactions have also been related to skill development such as social competence (Connolly & Doyle, 1984).

Given that higher quality engagement in playful learning experiences with activities and peers is considered more beneficial for children's learning than lower levels of engagement, identifying the playful learning context, free play or guided play, that promotes greater levels of high quality in play with activities and peers is important. Previous research of teacher presence during play suggests that free play and guided play might promote high quality play in different domains (i.e., activities versus peers). Specifically, one study showed that higher quality activity engagement was more likely to occur when a teacher was present but higher quality peer interactions were more likely to occur when teacher was not present (Kontos & Keyes, 1999). Thus, research is needed to examine the quality of play experiences that occur in free and guided play.

Which Form of Play Promotes More Diversity in Experiences?

Not only may free and guided play promote different learning experiences and quality of experiences with activities and peers, but free and guided play may also differentially promote diversity in play. An important way to examine children's playful learning experiences with activities and peers is to consider the diversity of their engagement, or the degree to which children engage or interact with a large or small range of activities and peers. Diversity in play can be conceptualized as the breadth of

children's engagement with activities and peers. For example, a child's activity and peer experiences could be characterized as low in diversity because they always play with one activity (e.g., blocks) or peer (e.g., Alex) or they could be characterized as high in diversity because they play with a range of activities (e.g., art, books, blocks, toy animals, toy vehicles) or peers (e.g., Alex, Ashley, John).

Greater diversity in children's play with activities and peers is more beneficial for learning than a narrow range of experiences with activities and peers. For example, one study showed that preschool children who engaged with a variety of play activities and peers were better socially and academically adjusted than children who only engaged with a limited range of activities and peers (DiDonato et al., 2012). The authors hypothesized that the causal mechanism in this relation is that diversity of involvement with activities and peers provides more opportunities for skill development in different domains. In other words, diversity of involvement with many activities and peers provided multiple opportunities for children to practice a broader range of skills than did narrow involvement with only a few activities and peers. Studies of older children and adults also suggest that diversity of experiences is beneficial for learning and development (see DiDonato & Berenbaum, 2011 for a review).

Years of research on children's engagement with activities and peers during free play suggests that children's interests are typically narrow. Specifically, children's interests during free play are often gender-typed, such that girls and boys tend to engage in a limited range of activities (i.e., girls played with feminine activities and boys played with masculine activities) and with a limited range of peers (i.e., girls played with girls and boys played with boys) and that this limited engagement becomes stronger over time

(Fabes et al., 2003; Martin & Fabes, 2001; Ruble, Martin, & Berenbaum, 2006). Thus, if children have unstructured time as they do in free play, they may limit themselves to gender-typed activities and play with same-sex peers. In this way, free play may promote a more narrow range of experiences with activities and peers than guided play.

Other research suggests that free play may promote a more diverse range of experiences with activities and peers than guided play. In general, preschool teachers are female and they tend to spend more time participating in feminine-typed (e.g., dress-up) and academic (e.g., books) activities over other more masculine-typed (e.g., trucks) or nonacademic activities (e.g., large motor; Fabes et al., 2003; Fagot, 1978). Due to teacher preferences for specific activities, we might expect children's experiences with activities and peers during guided play to consist mostly of feminine or academic-typed activities and to bring children into greater contact with girls, who also prefer feminine activities. It may also be the case that the amount of diversity children experience during free play varies by their gender. For girls, this focused exposure to feminine activities during guided play does not likely provide greater diversity in play with activities and peers than they would experience during free play. For boys, however, play with teachers likely promotes more diversity in play with activities and peers compared to free play or their typical preferences for masculine activities and male peers. Thus, diversity may not only vary from free play to guided play but this variability may also be influenced by children's own gender.

Given that certain experiences may be more beneficial for targeting specific skills, or may be more generally beneficial than other experiences, it would be useful to have a clearer understanding of the types of learning experiences with activities and peers

(i.e., types of engagement, quality of engagement, diversity of engagement) that occur in free play and guided play. Armed with knowledge about the types of learning experiences that naturally occur in each context, recommendations can be made for maintaining or changing the current use of free play and guided play. The existing research from which to draw hypotheses on the nature of children's experiences with activities and peers across free play and guided play, however, is inconsistent. Accordingly, the present study examined the nature of children's playful learning experiences with activities and peers across free play and guided play in an exploratory manner.

Present Study

According to theory and limited research, guided play is more successful than free play in promoting children's learning and development; however, studies have not been conducted to examine how often each of these play types occur, how these playful learning contexts are similar or different from one another in terms of types and quality of experiences, and the degree to which each promotes a diversity of experiences. The present study offers the first observational data to explore what naturally occurs in free and guided play. The goals for this study are fourfold:

1) The first goal was to describe the proportion of time children spend in free play and guided play within and across classrooms. It is unknown whether or not there is an imbalance of these two types of play and how much variability exists within and across classrooms.
2) The second goal was to compare the types of playful learning experiences with activities and peers that occur most frequently in free

play and guided play. Several aspects of children's play or sets of related variables were examined to address this goal, including: what children play with (i.e., activities such as books and blocks), who children play with (i.e., the gender of peer play partners), and the size of social interactions (i.e., dyadic versus group). Research suggests that experiences with different types of activities and peers are thought to promote different learning opportunities (Bredekamp & Copple, 1997; Connolly & Doyle, 1984; Dodge et al., 2002). Thus it is important to identify the types of experiences that are most likely to occur in each context so that teachers may use this information to target specific skills.

3) Similarly, given the research suggesting that higher quality activity engagement and peer interactions are better for skill development, it is important to identify the contexts that promote these higher quality experiences. Accordingly, the third goal was to examine the degree to which free and guided play promote higher quality activity engagement (e.g., passive versus constructive) and peer interactions (e.g., parallel versus social).

4) The final goal was to identify the context that promotes the most diversity in children's play experiences with activities and peers. Research on play with activities and peers has revealed greater diversity of involvement was positively associated with overall adjustment (DiDonato et al., 2012). Accordingly, to address the fourth goal of the

proposed study, the diversity of children's involvement with activities and peers, above what would be expected by chance, was compared across free and guided play. Furthermore, children's own gender was explored as a moderator of the degree of diversity in children's play with activities and peers in free play and guided play.

Due to a lack of prior research comparing time spent in free play and guided play and the mixed evidence concerning children's experiences with activities and peers across these contexts, no a priori hypotheses were made. Rather, analyses were conducted as an exploratory examination of the proportion of time children spend in free play versus guided play and the types, quality, and diversity of children's experiences with activities and peers in each context. The data for this study are drawn from a large NICHD-funded five-year longitudinal study with Head Start children (Co-PIs Carol Martin, Richard Fabes, and Laura Hanish). As the largest federally funded early childhood education program in the United States, understanding the dynamics of play within Head Start programs has important implications for policy relevant to low-income racial/ethnic minority children. This project utilizes a unique observational method (Martin & Fabes, 2001) that provides extensive data on children's playful learning experiences. These data, which were collected multiple times per week over the course of children's fall and spring semesters, were used to examine the goals outlined above.

Method

Participants

Participants were preschool children recruited from 18 Head Start classrooms in an urban southwestern city. Children were recruited from participating classrooms 2-3

weeks into the start of the academic school year at pre-arranged parent meetings. At these meetings, a Spanish-English bilingual research assistant invited parents to give permission for their children to participate. For those parents who did not attend the parent meetings, information about the research project was presented in person at pick-up and drop-off times. The consent rate was 99% at recruitment (*N*= 308 out of a possible 311). Children who were chronically absent or who left in the fall semester were dropped from the analyses (*n* = 26). This was determined by their availability for classroom observations (discussed in more detail in the Procedures and Measures section). Children who repeated preschool during years 2 and 3 of data collection (*n* = 16) had data collected twice; only data from the first year was used in analyses to prevent dependencies.

The final sample consisted of *N* = 282 preschoolers (*M* age = 52 months at beginning of the fall term; range: 37 – 60 months). Almost half of the participants were girls (48%). The majority of participants (70%) were Mexican or Mexican-American; 59% of the participants primarily spoke Spanish. Relatively few of the participants were Anglo-American (8%), African-American (7%), or Native-American (1%). Race/ethnicity was "other" or "unknown" for the remaining 14% of the sample. Participants were predominately of low socioeconomic status (82% below $30,000; mode: $10,000 to $20,000). Over half of the children (59%) came from two-parent families, and the rest of the children were from various types of single parent homes.

Procedures and Measures

Data were collected using a scan observation protocol in which children were observed indoors and outdoors, in 10-second scans, multiple times a day, two to three

times a week, over the fall and spring semesters (Martin & Fabes, 2001). Trained classroom observers (8-10 per year; 92% female) began each day at the top of a randomized list of children (that was reordered mid-semester to prevent biases), found the first child on the list, and noted whether the child was present and available for coding, present but unavailable for coding (e.g., in the restroom), or absent. Next, coders recorded if the target child was involved in play or direct instruction. The observer would then complete a 10-second observation of the primary activity the child was playing (e.g., blocks), the number of peer partners and gender of peer partners (e.g., single male playmate), the quality of activity engagement (e.g., constructive), the quality of the peer interaction (e.g., parallel play), whether a teacher was present (i.e., within a 5-ft radius), and if the child was oriented toward the teacher (e.g., talking to teacher) and then move to the next child on the list. The observers would complete the entire list and then begin at the top again. To determine reliability, two observers independently coded the same child's behavior. During reliability coding, observers rotated through the class list to ensure that reliabilities were conducted for each child. A total of 6,480 observations, or 10% of the total observations, were simultaneously coded by two independent observers to obtain kappas for the study variables. Specific kappas for observed variables are reported below.

For the 282 children participating in the present study, a total of approximately 64,600 10-second observations were collected across the fall and spring semesters in three years of data collection (M = 229.20 observations per child, SD = 81.64; range = 36-406). Approximately 39,700 of those observations were collected during play (M = 140.81 observations per child, SD = 59.57; range = 30-316). The large range in the

number of observations across children was due to differences in their attendance and availability. Children with fewer than 30 observations were dropped from analyses (due to chronic absence or leaving the school; $n = 26$).

Categorization of time spent in each context: Free play, guided play, and direct instruction. To examine the amount of time children spent in the child-centered approach, including free play and guided play, proportion scores were created and compared to the proportion of time spent in direct instruction (i.e., teacher-directed activities). Calculation of proportion scores controlled for variations due to child attendance and availability by using each child's total number of observations as the denominator. For example, the number of times a child was observed engaging in free play was summed and divided by the total number of times that child was observed in free play, guided play, and direct instruction. These composites provided an assessment of the proportion of time children spent in each context.

For every observation that occurred during play, coders recorded whether or not there was a teacher in the immediate vicinity (within 5-ft) or a teacher who was outside the immediate vicinity but was clearly interacting with the target child. All observations during play in which there was a teacher within a 5-foot radius of the target child or in which a teacher was interacting with the target child were categorized as guided play. All other observations during play (i.e., target child was engaged in play alone or with peers but not interacting with teachers or within close proximity to a teacher) were categorized as free play. All observations that did not occur during play or routine activities (e.g., bathroom) were categorized as direct instruction in either small or large groups.

Measurement of study variables within free play and guided play. To allow for the computation of study variables based on observations within free play and within guided play, separate data files were created for each type of play. In other words, all observations that occurred during free play were extracted into a separate data file and the same was done for guided play. Then, proportion scores for each measure (type of activity, type of peer play groups, quality of activity engagement, quality of peer interactions, diversity of activity involvement, diversity of peer involvement) were created within separate free play and guided play data files by totaling the number of times a child was observed in each category and dividing by the total number of observations within that particular play context. For example, the proportion score for type of activity during free play was created by summing the total number of times a child was observed in a specific activity (e.g., art) during free play and dividing by the total number of observations during free play. A matching proportion score for each specific activity during guided play was also created. Proportion scores were utilized to standardize the observations and account for differences in total number of observations in each context and across children. After all activity, peer, quality, and diversity variables were created, the two separate context specific data files (free-play and guided play) were merged for analyses.

Measurement of type of activity involvement. Child-centered early education environments typically provide children with opportunities to play with a variety of developmentally appropriate toys and materials, including blocks, art equipment, dramatic play objects (e.g., kitchen materials, dress up), toys, games, books, writing materials, math and science materials, sensory materials, computers, musical instruments

and more (Bredekamp & Copple, 1997; Dodge et al., 2002). Thus, coders recorded children's primary activity using a checklist of 30 activities (e.g., balls, bikes, blocks). Four of the 30 activities were dropped from analyses because they are not considered play activities (snack, talk, other) or because children were never observed playing in the activity (television); this resulted in a total of 26 activities. Kappas ranged from .66 to 1.0 for all activity codes.

To gain a deeper understanding of engagement in play activities during free play and guided play, the 26 observed activities were subsequently categorized using two different classification schemes: curriculum-based activity categories and gender-typed activity categories. Curriculum-based activity categories reflect the fact that preschool teachers often group activities together in areas of the classroom to promote specific learning skills. Such curriculum-based activity domains may include art, dramatic play, library, toys and games, discovery, and outdoors and large motor (Dodge et al., 2002). Teachers often organize the preschool classrooms using these domains and children may select their activities using this categorization system as a guide. Additionally, children's activity choices are also often guided by children's preferences for gender-typed toys (Ruble & Martin, 1998). For example, preschool boys typically choose to play with masculine-typed activities, such as blocks and transportation toys; in contrast, girls often choose to play with feminine-typed activities such as dolls and dress-up clothes (for a full review of children's gender-typed toy preferences see Ruble, Martin, & Berenbaum, 2006).

Classification of curriculum-based activities. The 26 observed activities were categorized as Art, Dramatic Play, Toys and Games, Library and Discovery, and

Outdoors and Large Motor using the Creative Curriculum interest areas as a guide (Dodge et al., 2002). Of the 26 observed activities, three activities were categorized as art (crayons/paints/markers, clay, music), six activities were categorized as dramatic play (phone, dress-up, kitchen, pretend feminine, pretend masculine, pretend neutral), eight activities were categorized as toys and games (board games, blocks, toy vehicles, toy animals, puzzles, figure play feminine, figure play masculine, figure play neutral), two activities were categorized as library (books, writing), three activities were categorized as discovery (math/science, computer, sensory), and four activities were categorized as outdoors and large motor (bikes, balls, digging, and large motor[e.g., jungle gym, tunnels, running]). Proportion scores were subsequently created for the categories of art, dramatic play, toys and games, library, discovery, and outdoors and large motor within both free and guided play. For example, to create the curriculum-based activity "art" within free play, the total number of times a child was observed engaging with crayons/paints/markers, clay, or music were summed and divided by the child's total number of observations during free play across the whole year. The proportion score for art was also then created for guided play.

Classification of gender-typed activities. Previous research examining gender differences in activity engagement was used to classify the play activities in the present study as feminine, masculine, or gender-neutral (Goble, Martin, Hanish, & Fabes, 2012). Five activities were categorized as feminine (crayons/paints/markers, dress-up, kitchen, pretend feminine, and figure play feminine), nine activities were categorized as masculine (balls, bikes, blocks, computer, toy animals, toy vehicles, pretend masculine, figure play masculine, and large motor), and twelve activities were categorized as gender-

neutral (books, clay, board games, digging, figure play gender- neutral, music, math/science activities, pretend gender-neutral, puzzles, sensory activities, phone, and writing). Similar to the creation of proportion scores for curriculum-based activities, proportion scores for the gender-typed activity categories of feminine, masculine, and gender-neutral were also created within free play and guided play.

Measurement of quality of activity play. Each time a child was observed engaging in an activity, coders recorded the quality of their activity play using four categories adapted from the Howes' Object Play Scale (Howes & Stewart, 1987). If children were observed just holding or carrying an object/toy around, it was coded as *passive play (kappa =.58)*. When children were observed using objects/toys in a repetitious or indiscriminate way such as throwing, banging, or pushing, it was coded as *nonspecific manipulation (kappa =.54)*. Observations in which children were using objects/toys in a sustained creation-oriented manner, such as building with blocks, were coded as *constructive play (kappa =.79)*. Finally, if children were observed using objects/toys in creative or unintended ways, such as using a stick as a sword, these observations were coded as *creative play (kappa =.64)*. Proportion scores for the amount of time children spent engaging in passive play, nonspecific manipulation, constructive play, and creative play were created in each context. For example, the proportion score for passive play was created by summing the number of times a child was observed just holding or carrying an object/toy around and divided by the child's total number of observations during free play across the whole year.

Measurement of type of peer play groups. When the target child was observed interacting with a peer, the coder recorded whether the child was playing with one or

more same- or other-sex peers. These codes were used to categorize children's interactions as same-sex or other-sex dyads, and same-, other-, and mixed-sex groups. Observations in which the target child was observed interacting with only a peer(s) of the same gender were categorized as same-sex dyads (i.e., two children) or groups (i.e., two or more peers). Similarly, observations in which the target child was observed interacting with only a peer(s) of the other-sex were categorized as other-sex dyads or groups. Finally, observations in which the target child was observed interacting with at least one boy and one girl were categorized as mixed-sex groups. Subsequently, several proportion scores were created. First, variables were created for total number of same- and other-sex dyadic peer interactions, total number of same- and other-sex group peer interactions, and total number of mixed-sex group peer interactions. Additionally, total number of peer interactions, total number of dyadic peer interactions, and total number of group peer interactions were created by summing peer interaction variables. For example, total number of dyadic interactions was created by summing the total number of same- and other-sex dyadic interactions. Again proportion scores were created by summing the number of times a child was observed interacting with a particular type of peer or peer group (e.g., same-sex dyad) and divided by the child's total number of observations during free play or guided play across the whole year. Kappas across all peer play group codes ranged from .77 to .83.

Measurement of quality of peer interactions. Based on the peer play behaviors identified by Howes and Matheson (1992), coders recorded the quality of children's social interactions with peers using three codes: onlooking, parallel, and social. *Onlooking (kappa =.83)* was coded if the target child was observed to be watching

another child or other children play but was not involved in the play. *Parallel play (kappa =.85)* was coded if the target child was playing alongside in the same activity as another child or children, but not interacting with others. *Social play (kappa =.90)* was coded when the target child was actively engaged with one or more children in an activity. Social play required direct interaction between the target child and a least one other child, such as social conversation or rule-based play. Proportion scores for onlooking, parallel play, and social play were created using the same method as described for other measures.

Measurement of diversity. Observational data show that children within a preschool classroom have opportunities to interact with every activity and peer in the classroom throughout the course of a year. For this reason, when considering diversity of engagement with activities and peers, it is important to consider the degree of diversity that occurs simply due to chance. Thus, following previous research, I conceptualized the diversity of activity involvement and peer involvement variables as the degree to which children showed consistent engagement with many different activities or peers above what would be expected by chance (Schaefer, Light, Fabes, Hanish, & Martin, 2010). For example, for engagement in an individual activity (e.g., books) to count toward the diversity score required that a child behaviorally exhibited consistent engagement with that activity beyond what would be expected by chance.

Consistent engagement. For each activity (e.g., play with balls) and for each peer (e.g., play with Mark), a probability score called "consistent engagement" was calculated as follows:

$$aij = 1 \leftrightarrow \frac{oij}{oi} > \frac{1}{N-1}$$

Consistent engagement (*aij*) was coded as 1.0 if the number of times child *i* was observed with an activity or peer *j* (*oij*), divided by the number of times child *i* was observed with any activity or peer (*oi*), exceeded the proportion expected by chance (1/ *N*-1, where *N* equals the number of activities or children in the classroom). Thus, a dichotomized variable indicating consistent engagement/inconsistent engagement in activities or peers was created: to be coded as consistent engagement a child had to be observed interacting with that particular activity or peer beyond what would be expected by chance from simply being exposed to all of the activities and peers in the classroom. This consistent engagement variable was then used as a basis for calculating diversity of activity involvement and diversity of peer involvement proportion scores.

Diversity of activity involvement. A diversity of activity involvement score was created for free play and guided play. The scores were created by summing the binary consistent engagement in activity scores (0 or 1.0) across all 26 potential activities within each context and dividing by 26. For example, a child who engaged with 5 activities exceeding chance (e.g., balls, blocks, bikes, books, and digging), would have a sum score of 5 activities out of a potential 26 activities, or a diversity of activity score of 5/26=0.19. The range of the diversity of activity involvement scores was 0-1 and represents the degree of diversity in children's overall involvement with play activities within free play and guided play. Higher scores represent greater diversity of activity involvement.

Diversity of peer involvement. Similarly, a diversity of peer involvement score was created for free play and guided play. The scores for diversity of peer involvement

were created by summing consistent engagement with peer scores (0 or 1.0) across the total number of peers (total number of children in the child's classroom minus the target child) within each context and dividing by the total number of peers (range per classroom 14 to 20). For example, a child who played with every peer in their class (e.g., 16 potential peers) exceeding chance, would have a sum score of 16 out of a potential 16, or a diversity score of 16/16=1.00. The range of the diversity of peer involvement scores was 0-1 and represents the degree of diversity in children's overall peer involvement within free play and guided play. Again, higher scores represent greater diversity of peer involvement.

Multi-level Data

Because the data used in the present study were clustered within teacher/classroom, the study variables were examined for potential differences that relate to children's teacher/classroom. A design effect greater than 2 indicates that the hierarchical nature of the data should be taken into account in analyses (Muthén, 1994). Design effects for the study variables ranged from 1.45 to 10.31 (M = 4.42), which suggest that the data exhibit dependency within teacher/classroom. Ideally, multilevel analyses (using *M*plus) would be utilized to examine the within and across classroom variability between free play and guided play. Unfortunately, a minimum of 30 units at each level of analyses is the recommended guideline for multilevel analyses when examining questions at multiple levels (Bell, Ferron, & Kromrey, 2008). The current study had only 18 teachers/classrooms. It is possible to account for clustering by including children's teacher/classroom as a covariate in analyses; however, this method was not utilized because a large portion of the variability in the variables of interest

comparing free play and guided play would be overlapping with the variance that would be accounted for by including teachers/classrooms. For these reasons, no techniques were employed to address the multi-level nature of the data.

Results

The purpose of the study was to explore, using observational methods, naturally occurring behavior during free and guided play. There were four goals: (1) to describe the proportion of time children spend in free play, guided play, and direct instruction within and across classrooms; (2) to compare the types of playful learning experiences with activities and peers that occur most frequently in free play and guided play; (3) to compare the quality of activity engagement and peer interactions that occurs in free play and guided play; and (4) to compare the diversity of engagement with discrete activities and peers in free play and guided play and to consider whether child gender moderates the level of diversity in children's activity engagement and peer interactions across free play and guided play. Analyses to address each goal are described below.

Analyses of Time Spent in Free Play, Guided Play, and Direct Instruction

The proportion of time children spent in each context across the full sample was examined with pairwise comparisons rather than an overall repeated measures of analysis due to data dependency in the three context variables -- free play, guided play, and direct instruction -- such that time spent in each context sums to 1, resulting in a lack of variance from which to estimate group differences (Tabachnick, & Fidell, 2012). Table 1 presents the results of the paired *t*-tests and descriptive statistics for free play, guided play, and direct instruction for the full sample (across classrooms). It is important to remember that the proportion scores for time spent in free play, guided play, and direct

instruction are dependent upon one another. Accordingly, more time spent in one context (e.g., free play) results in less available time to spend in the other contexts (i.e., guided play and direct instruction). On average, however, children spent significantly more time in direct instruction (39%; M = .39, SD = .10) than in guided play (35%; M = .35, SD = .10) and free play (26%; M = .26, SD = .10), ts(281) = 12.14 and 3.80, respectively, $ps \leq$ .001. Moreover, children spent significantly more time in guided play than in free play, $t(281) = 8.03$, $p \leq .001$. Visual inspection of the ranges and mean levels for the proportion of time children spent in free play, guided play, and direct instruction across all classrooms show individual variability across children in the sample. For example, although on average children were observed spending about 26% of their time in free play; some children spent as much as 57% of their time in free play, whereas others spent as little as 9% of their time in free play.

Given this level of variability, within-classroom comparisons of the proportion of time children spent in each context were conducted using paired t-tests for each of the 18 classrooms. Examining the descriptive statistics and t-tests revealed both individual variability and classroom variability (see Table 2 and Figure 1). Overall, analyses comparing mean levels for proportion of time spent within each classroom suggested ten classrooms in which children spent more time in guided play than in free play and two classrooms in which children spent more time in free play than guided play. For six classes, there was no significant difference in time spent in free play and guided play.

Descriptive Statistics for Study Variables

Descriptive analyses indicated that the outcome variables—type of curriculum activity (art, dramatic play, toys and games, library and discovery, and outdoors and large

motor), type of gender-typed activity (feminine, masculine, gender-neutral), type of peer play groups (same-sex dyad, same-sex group, other-sex dyad, other-sex group, mixed-sex group), quality of activity engagement (passive, nonspecific manipulation, constructive, creative), quality of peer interactions (onlooking, parallel play, social play), diversity of activity engagement, and diversity of peer interactions—were all normally distributed as indicated by low skew and kurtosis (see Tables 3, 4, and 5; Tabachnick & Fidel, 2012).

To test for the possibility of including covariates in primary tests of the hypotheses, three multivariate repeated measures analyses of variance were conducted to examine differences in study variables due to children's ethnicity (Hispanic, non-Hispanic), family income (high, low; high poverty = family SES below $30,000 per year), and gender (girl, boy). Analyses examining ethnicity revealed no significant differences between Hispanic and non-Hispanic children on the study variables, $F(1, 252) = 2.69$, *ns*. Results also revealed that high and low poverty children did not significantly differ on any study variables, $F(1, 206) = 0.04$, *ns*. Similarly, significant differences were not found between girls and boys on the study variables, $F(1, 270) = 2.95$, *ns*. Accordingly, children's ethnicity, family income, and gender were not included in analyses.

Comparison of Types of Experiences with Activities and Peers

The second goal of the current study was to identify the types of playful learning experiences with activities and peers that occur most frequently in free play and guided play. To do this, several multivariate repeated measures analyses of variance were conducted with two within-subject factors - the playful learning context (free play and guided play) and one set of study variables (i.e., curriculum-based activity engagement,

gender-typed activity engagement, overall peer interactions, gender-typed peer interactions). The sphericity assumption was not met for the activity engagement and gender-typed peer interaction analyses, resulting in a loss of power, so the Huynh-Feldt correction was applied to all activity engagement and gender-typed peer interaction analyses (with the exception of the analysis comparing overall peer interactions). Results revealed significant main effects for context and two-way interactions between context and all types of experiences variables (activity engagement and peer interactions; see Table 6).

To further analyze the specific types of play (activities and peers) that differed significantly within each context, paired *t*-tests (within-subjects) were used to make pairwise comparisons of each study variable across free play and guided play (see Table 3 for means and standard deviations). A Bonferroni adjustment was used for paired *t*-tests examining activity engagement. Effect sizes (Cohen's *d* statistic) for comparisons across free play and guided play were calculated using original means and standard deviations (Dunlop, Cortina, Vaslow, & Burke, 1996). The interpretation of this index suggests that a *d* of .20 is a small effect, *d* of .50 is a medium effect, and a *d* of .80 or greater is a large effect (Cohen, 1988; Rosnow & Rosenthal, 1989). The simple effect analyses comparing specific activities and peer interactions *within* context are not presented here.

Activity engagement. Analyses of curriculum-based activity engagement revealed that children engaged in art activities (d = .86) and library activities (d = .36) significantly more during guided play than free play, $ts(281) = 14.33$ and 4.71, respectively, $ps \leq .01$. Children engaged in discovery activities (d = .50), dramatic play activities (d = .94), outdoors and large motor activities (d = .71), and toys and games (d =

.18), significantly more during free play than guided play, *t*s(281) = 7.56, 14.40, 11.37, and 2.90, respectively, *p*s $\leq$ .01. Consistent with these findings, analyses of gender-typed activity engagement revealed that children engaged in masculine activities (*d* = 1.04) more during free play than guided play, *t*(281) = 19.63, *p* $\leq$ .05. There were no significant differences in levels of feminine or gender-neutral activity engagement between free play and guided play.

Peer interactions. Pairwise comparisons of children's total peer interactions in free play and guided play revealed that overall, children engaged in more peer interactions (*d* = 1.56) during free play than guided play, *t*(281) = 28.88, *p* $\leq$ .001. Similarly, children engaged in both dyadic (*d* = 1.75) and group (*d* = .35) peer interactions more during free play than during guided play *t*s(281) = 26.08 and 5.23, respectively, *p*s $\leq$ .001. Results revealed similar findings examining gender-typed peer interactions in that children engaged in dyadic same-sex (*d* = 1.17), dyadic other-sex (*d* = .76), group same-sex (*d* = .58), and group other-sex (*d* = .27) interactions more during free play than during guided play, *t*s(281) = 22.84, 11.74, 9.64, and 3.51, respectively, *p*s $\leq$ .01. Interestingly, children engaged in mixed-sex peer group interactions (i.e., play with at least one peer their same-sex and one peer of the other-sex; *d* = .26) more during guided play than during free play, *t*(281) = 3.92, *p* $\leq$ .01.

Comparison of Quality of Experiences with Activities and Peers

The third goal was to examine if the quality of children's activity engagement and peer interactions differed across free play and guided play. Again, two multivariate repeated measures analyses of variance were conducted with two within-subject factors - the playful learning context (free play and guided play) and one set of study variables

(i.e., one for quality of activity engagement and one for quality of peer interactions). The sphericity assumption was not met in the analysis examining quality of peer interactions, so the Huynh-Feldt correction was applied. Results revealed significant main effects for context and two-way interactions between context and all quality of experience variables (see Table 5).

Again, pairwise comparisons of the quality of children's experiences with activities and peers were only made across the free play and guided play contexts (see Table 4 for means and standard deviations). In analyses examining the quality of activity engagement, results revealed that the two highest indicators of quality activity engagement -- constructive play (d = .22) and creative play (d = .35) -- occurred more during free play than during guided play, ts(281) = 4.74, and 5.00, respectively, ps $\leq$ .05. Similarly, analyses of the quality of peer interactions revealed that the highest level of peer interactions, social interactions (d = 1.79), occurred more during free play than during guided play, t(281) = 31.30, $p \leq .05$. Parallel play (d = .51) occurred more during guided play than during free play, t(281) = 8.56, $p \leq .05$. There was no significant difference in levels of onlooking in free play and guided play.

Comparison of Diversity of Experiences with Activities and Peers

The fourth goal of the study was twofold: (a) to examine the diversity of engagement with discrete activities and peers in free play and guided play and (b) to consider child gender as a moderator. To address this goal, a repeated measures analysis of variance was conducted using one between-subjects factor (gender) and two within-subject factors, context (free play and guided play) and the diversity scores (activity diversity and peer diversity). The sphericity assumption was met. There was a significant

main effect for context, F (1, 270) = 64.09, partial eta^2 = .19, $p \leq .001$, and a significant two-way interaction for diversity by sex, F (1, 270) = 4.46, partial eta^2 = .02, $p \leq .05$. However, these were subsumed by a significant three-way gender of child x diversity x context interaction, F(1, 270) = 8.87, partial eta^2 = .03, $p \leq .01$. Simple effect analyses of the 3-way interaction were done by testing for the two-way interaction between diversity and context for each gender separately. For both girls and boys, there was a main effect of context, F(1, 130) = 24.91, partial eta^2 = .16, $p \leq .001$ and F(1, 140) = 10.81, partial eta^2 = .23, $p \leq .001$, respectively. For girls, but not boys, this main effect was subsumed again by a significant two-way interaction of diversity and context, F(1, 130) = 6.95, partial eta^2 = .05, $p \leq .01$.

Because the focus of the study was to examine differences across free play and guided play, further simple effects using pairwise comparisons were conducted within gender to examine how the specific diversity scores (i.e., diversity of activity engagement and diversity of peer interactions) varied across contexts for girls and boys separately (see Table 5). Analyses revealed that girls (d = .84) and boys (d = .53) engaged in a greater diversity of activities during free play than during guided play, ts(134 and 146) = 7.34 and 4.97, respectively, ps $\leq .001$. For diversity of peer interactions, there was only a significant difference between contexts for boys (d = .50), t(140) = 5.10, $p \leq .001$. Specifically, boys' peer diversity was greater in free play than in guided play. There was no significant difference in diversity of peer interactions across free play and guided play for girls.

Discussion

The purpose of this study was to use observational data to explore natural variations in two forms of child-centered play: free play, defined as play that occurs away from the teacher and without direct teacher interaction; and guided play, defined as play that occurs near the teacher or with direct teacher interaction. According to theory and limited research, guided play is thought to be better than free play for promoting children's learning and development. Thus, it stands to reason that the types, quality, and diversity of activity engagement and peer interactions thought to promote learning (e.g., higher quality peer interactions) would have occurred more during guided play than free play but this was not the case. Overall, the findings of the present study were inconsistent with theory and previous research. The implications of these findings are discussed with regard to children's skill development and early educational practices.

Time Spent in Free Play, Guided Play, and Direct Instruction

The first goal of the study was to examine the proportion of time children spent in the child-centered contexts, free play and guided play, within and across classrooms and compared to direct instruction. In the sample of Head Start classrooms examined in the current study, the child-centered approach or "play" occurred more frequently than direct instruction. Specifically, children in the current sample spent well over half of their time (61%) engaged in play, with just 39% of their time spent in direct instruction (children were not observed during routine activities). These findings differ from previous research, showing that of the time children in state-funded pre-kindergarten programs (including 15% Head Start classrooms) were observed in play and direct instruction (i.e., not including time observed in routine activities; 20%) they spent approximately 38% of

their time in play and 62% of their time in direct instruction activities (percentages calculated for the current study; Chien et al., 2010). Direct instruction is thought to be the best approach for teaching academic skills where the child-centered approach is thought to promote development in several areas including academic and social domains (Stipek, Daniels, Galluzzo, Millburn, & Salmon, 1998). Thus, the discrepancy between how teachers structure preschool children's schedule may be due to a stronger academic focus in state-funded pre-kindergarten programs (i.e., more direct instruction) compared to Head Start programs, which have emphasized the development of the "whole child" including academic, physical, and social/emotional domains (i.e., more child-centered; U.S. Department of Health and Human Services, 2010).

The discrepancy between the Chien et al. (2010) findings and the current results may also be due to differences in the sample characteristics. Chien and colleagues sampled prekindergarten children enrolled in state-funded programs across 11 states that were diverse in ethnicity, socioeconomic status, and urbanicity. The majority of participants in the present study were Head Start children from lower socioeconomic status families who were Mexican or Mexican-American, living in urban communities in the Southwest. Thus, the present sample was more homogeneous than the Chien et al. sample. Moreover, the present sample represented a very specific sociocultural group that is uniquely characterized by such features as immigration status, language, country of origin, and socioeconomic status. It has been demonstrated that low-SES, ethnic minority children tend to enter Head Start classrooms with more behavior problems than their more affluent peers (Huaging Qi & Kaiser, 2003; U.S. Department of Health and Human Services, 2003). Behavior problems can be disruptive to the classroom environment and

impede learning, especially during direct instruction activities (Rimm-Kaufman, Pianta, & Cox, 2000). Thus, it is possible that the Head Start teachers in this sample choose to allot more time for play than teachers in state-funded pre-kindergarten programs to accommodate the needs of the children in their classroom. Consistent with this idea, Carr, Taylor, and Robinson (1991) suggested that if students respond to direct instruction with noncompliant behaviors that are aversive to teachers, over time, teachers will likely provide direct instruction less often.

On average, children in this sample spent the majority of their time engaged in play, with children spending more time in guided play (35%) than in free play (26%). This is a novel finding; no prior studies have data with which these findings can be compared. Even in the detailed study by Chien and colleagues, the amount of time that children spent in different types of play was not examined. These findings are consistent with recent policy recommendations that preschool teachers devote more time to guided play than to free play (Chien et al., 2010; Hirsh-Pasek, Golinkoff, Berk, & Singer, 2008; Nicolopoulou, 2010).

Nevertheless, there was variability in how much time children spent in the different types of play both within and across classrooms. A strength of the current study is that the data were collected at the child-level, not the classroom-level. Accordingly, it was possible to explore how much time individual children spent in each context, in addition to estimating classroom averages. These descriptive data demonstrate significant and meaningful variability in classrooms. In the majority of classrooms, children spent more time on average in guided play than free play; however, in some classrooms children spent more time in free play than in guided play and for some classrooms there

was no significant difference in the average amount of time spent in each context. Moreover, even among children, there was tremendous variability in the amount of time they spent in free play and guided play. For example, descriptive statistics across all children showed that children varied in the amount of time devoted to guided play, with a range from 13% to 66%. This variability in time spent in free play and guided play within and across classrooms is likely driven by factors related to both teachers and children.

Teachers' philosophies or preference for the child-centered versus direct instruction approach contributes to variability across classrooms. Stipek and Byler (2004) examined teachers' educational philosophies (i.e., child-centered versus direct instruction) and teachers' practices and found congruency between philosophy and practice. For example, teachers who value experiential learning over basic skills training used a more child-centered (i.e., play-based) approach. Consistent with this idea, teachers who value the child-centered approach likely believe that children's play should be facilitated in a way that promotes learning and, thus, they likely spend more time engaging with children during play. These teachers also likely allow time for children to engage in free play as a way to promote learning. Teachers who value the direct instruction approach likely believe that learning occurs during direct instruction activities, spending the majority of the day in those activities and possibly utilizing free play as a time to prepare direct instruction activities rather than guiding play.

Children's own personality or temperament likely contributes to within classroom variability in how much time they spend in free play and guided play. Some children may seek guided play more than others and some children may elicit more guided play or teacher involvement. Coplan and Prakash (2003) used observational data to examine

teacher-child interactions during play and showed that child-level characteristics including aggressiveness, shyness, anxiousness, and sociability were related to how often preschool children both initiated and elicited teacher interactions. Specifically, aggressive preschoolers were more likely than their less aggressive peers to initiate interactions with teachers during play. Moreover, preschoolers who were relatively shy and anxious elicited or received more interactions from their teachers than did preschoolers who were less shy and anxious. In comparison, the children who spent the least amount of time with teachers were more sociable, less solitary, and had fewer behavior problems than their peers. Although the current study did not examine predictors of variability, the descriptive data presented here is an important first step in understanding the natural variability in free play and guided play that preschool children in Head Start programs might experience.

Types, Quality, and Diversity of Activity Engagement and Peer Interactions

Types of experiences with activities and peers. The second goal was to explore the types of activities and peers children engaged with across free play and guided play. It was important to explore which types of activity engagement and peer interactions occur most in each context because engagement with different types of activities and peers has been related to skill development across multiple domains (i.e., academic, affective, social; Bredekamp & Copple, 1997; Dodge et al., 2002; Serbin & Connor, 1979). The results of this study clearly demonstrate that there are significant differences in the types of activities and peers children engage with most during free play and guided play. Overall, children tended to engage with the greatest number of activities and peers during free play. The current research findings suggest that free play provides children with

opportunities to interact with a rather wide range of activities and peers, thus providing experiences thought to promote a range of skills including language, cognitive, social, and physical domains.

Several types of experiences with activities and peers occurred more frequently in free play than in guided play. Children played more with toys and games (e.g., puzzles, blocks), discover, outdoor and large motor activities, and masculine-typed activities during free play than in guided play. Children also engaged in more dramatic play during free play than in guided play. Furthermore, analyses examining peer interactions showed that children engaged in more peer interactions during free play than during guided play, and this included more dyadic and group-level interactions and more play with children of the same- and other-sex. The types of activity engagement and peer interactions that children experienced during free play are thought to relate to many domains of development in positive ways. Time spent in free play or with masculine-typed activities such as blocks and large motor activities is thought to be beneficial for the development of math-related skills such as spatial abilities (Serbin & Connor, 1979) and dramatic play has been related to children's social skill development (see Lillard, Lerner, Hopkins, Dore, Smith, & Palmquist, 2013 for a full review). Dyadic play and play with girls is thought to be more language based and requires conversation skills and maintained attention; whereas, play in large groups and with boys is thought to be related to the development of large motor and spatial skills (Bredekamp & Copple, 1997; Maccoby, 1990; Maccoby & Jacklin, 1987).

Although fewer, there were some types of experiences with activities and peers that occurred more in guided play than free play. Children played more with art and

library activities during guided play than during free play. Children also engaged in play with mixed-sex peer groups (i.e., play with at least one peer of their same-sex and one peer of the other-sex) more during guided play than during free play. Prior research suggests time spent in guided play, with books and writing tools, may be particularly beneficial for promoting literacy skills, such as learning to read and write (Bredekamp & Copple, 1997; Dodge, Colker, & Heroman, 2002). Recent research also suggests that play with mixed-sex peer groups compared to play with same- or other-sex peer groups is related to preschool children's school liking, an important predictor of school engagement and achievement in later grades (Martin, Goble, Bryce, Hanish, & Fabes, in preparation; Ladd & Price, 1987).

Quality of experiences with activities and peers. Whereas the second goal related to identifying what children were doing in free play and guided play, the third goal of the study was to examine the *quality* of children's activity engagement and peer interactions across these contexts. Children engaged with activities and peers in higher quality ways during free play compared to guided play. That is, children engaged in more constructive and creative activity play, during free play than guided play. Furthermore, children engaged in more social interactions, in which conversations or reciprocal interactions occurred, during free play than guided play, and they engaged in more parallel interactions, in which children did not directly interact but were engaged in the same activity, during guided play than free play. Consistent with this research, Gmitrova and Gmitrov (2003) showed that children engaged in higher quality dramatic play (i.e., more cognitively oriented behaviors) during child-directed free play compared to teacher-directed play. Play quality has been related to positive developmental outcomes for

children. For example, high quality engagement with activities has been related to improved social and cognitive development and high quality interactions with peers have been related to more positive social development (Connolly & Doyle, 1984; Dunn, 1993). Thus, the results of the current study suggest that time spent in free play, the context that promotes higher quality activity engagement and peer interactions, likely leads to more positive social and cognitive development than time spent in guided play.

These findings support previous research that has demonstrated that teacher involvement in play may interfere with children's play quality. For example, studies have shown that the more teachers are involved in children's play, the lower the quality of their peer interactions (i.e., social play; File, 1994; File & Kontos, 1993; Kontos & Wilcox-Herzog, 1997). Although there are different perspectives on this issue, some researchers believe that teachers over-direct children's play or direct play in a way that is incongruent with children's needs (Sutton-Smith, 1993; Trawick-Smith & Dziurgot, 2011). Unfortunately, a limitation of the current study, one that is true of the existing research examining guided play, is the lack of detail regarding teacher behaviors during guided play. It is unclear how exactly teachers are guiding play in naturalistic settings but the findings from the current research suggests that naturally-occurring teacher involvement in play does not promote high quality playful learning experiences.

Diversity of experiences with activities and peers. The final goal of the study was to examine the diversity of children's activity engagement and peer interactions during free play and guided play and to consider whether girls and boys might differ in diversity of engagement across settings. Overall, both girls and boys engaged with a greater diversity of activities during free play compared to guided play. However,

moderation analyses revealed significant differences between girls and boys in their diversity of peer interactions during free play versus during guided play. Specifically, boys engaged with a greater diversity of peers during free play than guided play but, for girls, there was no significant difference in diversity of peer interactions across free play and guided play. It was interesting to discover that levels of diversity in peer interactions were greater in free play compared to guided play for boys but not girls. In free play, both sexes are free to choose partners but, in guided play, teachers may direct peer interactions to a greater extent. Teachers might direct boys to a more constrained set of peer partners than girls if boys are rowdy or disruptive. Similar to the findings concerning the developmental outcomes of higher quality engagement with peers and activities, there is some research suggesting that diversity of activity engagement and peer interactions relates to preschool children's positive development. Specifically, one study showed that preschool children who engaged with a variety of play activities and peers were better socially and academically adjusted than children who only engaged with a limited range of activities and peers (DiDonato et al., 2012).

Free Play or Guided Play? Taken together, these findings demonstrate that children's experiences during free play included a wide array of activities and peers and these experiences were of higher quality and greater diversity than children's experiences during guided play. Although previous intervention research has shown that guided play can be a productive context for children's learning (e.g., Barnett et al., 2008), the results of the current study suggest that without the appropriate teacher training, teacher involvement in play does not promote learning experiences that are thought to be related to skill development. Does this mean that free play is better for children's learning and

development than guided play? It is possible, but recent research has shown that time spent in free play and guided play was not positively related to children's academic, affective, or social skill development in mixed-method classrooms (Goble, Dissertation Study 2). Thus, linking free play and guided play to child outcomes may be more complicated than simply understanding which context provides more of the learning experiences thought to be related to children's learning and development.

Implications for Practice

In recent years, scholars have called for an increase in play that is supervised and guided by teachers and a decrease in unsupervised free play (Chien et al., 2010; Hirsh-Pasek et al., 2008; Nicolopoulou, 2010). In light of the findings from the current study showing that children already spend more time in guided play than free play, current recommendations regarding free play and guided play may be missing the mark. Perhaps recommendations for free play and guided play should focus less on how often each occurs and more on how each type of play should be implemented to improve learning and development.

Recommendations for free play. In the current study, free play seemed to be more beneficial than guided play. Specifically, during free play, compared to guided play, children engaged with a greater variety of activities and peers and play with activities and peers was of higher quality and diversity. Although free play provides important playful learning experiences, time spent in free play has been negatively related to children's academic and social outcomes (Chien et al., 2010; Goble, Dissertation Study 2). It seems that children may need help making connections between the skills and concepts they should be practicing and learning and their experiences during free play. Perhaps if

teachers explained the goals for free play and about how free play can maximize those goals, it would be more effective. For example, to use free play to promote sharing, teachers may engage in explicit discussions with children how they can practice sharing during the play period. Research on older children has shown that when teachers provide goals that focus children on increasing their ability, their performance improves (Elliot & Dweck, 1988). Thus, it is recommended that teachers use free play as a tool to target specific skills and children should be made aware that play is meant to be productive.

Recommendations for guided play. Results from the current study support previous research suggesting that even though teachers are present during play, they may not always know how to enrich play in a way that facilitates learning (Bennett, 1997; Moyles, Adams, & Musgrove, 2002). However, guided play interventions suggest that when teachers are provided strategies regarding how to appropriately guide children's play, guided play seems to be effective (e.g., Barnett et al., 2008). Accordingly, based on the present findings, and on past research on the positive effects of high- quality teacher guided play, it is recommended that teachers use an intentional and reflective approach to guiding play. During guided play, teachers should broaden the types of activities and peers with whom children play, they should facilitate higher-quality interactions with those activities and peers, and expose children to a greater diversity of activities and peers. Ideally teachers would be trained using the tenants of Vygotsky's theory, an effective approach which focuses on helping teachers learn to scaffold children's learning during play in a way that will help each child reach their highest potential.

Aside from large-scale interventions (e.g., Tools of the Mind; Bodrova & Leong, 2009), teacher preparation programs and professional development activities could focus

on enhancing teachers' free play and guided play strategies. One approach would be to give teachers literature about free play and guided play and the tools to train themselves. For example, self-analyses of classroom videos and other methods of promoting reflection on professional practice have been shown to be effective in teacher training studies on scaffolding children's play (Kok, Kong, & Bernard-Opitz, 2002; Schuler & Wolfberg, 2000).

Conclusions and Directions for Future Research

The results from the present research provide detailed information about two child-centered contexts: free play and guided play. Intensive observational data allowed for a micro-level examination of the amount of time children spend in free play and guided play, as well as the types, quality, and diversity of experiences with activities and peers that occur most during these contexts. Despite the study's many strengths, the current research suggests important directions for future research.

Naturalistic observations of the daily activities of preschool children in the current sample showed that they spent over half of their time engaged in child-centered activities or "play" and over half of that play time occurred in the presence of teachers (i.e., guided play). The apparent variability, both across classes and within classes, in preschoolers' exposure to free play and guided play is likely an indication of interesting patterns of variability within and across teachers that could be explored with larger samples. For example, it may be the case that some teachers are more skilled at promoting high quality experiences during play and, in those classrooms, there may be no significant difference between quality of experiences across free play and guided play. Unfortunately, due to a relatively low number of teachers/classrooms in the current study, multilevel analyses

could not be utilized to compare children's experiences with activities and peers during free play and guided play within and across classrooms (Bell, Ferron, & Kromrey, 2008). Accordingly, future research should include a larger sample of classrooms that would allow for the examination of variability in types, quality, and diversity of experiences during free play and guided play within and across classrooms.

The current study did not support theory and prior research suggesting that guided play is a more beneficial context than free play. According to Vygotsky's views of children's development, guided play is seen as the more beneficial playful learning context because children's learning through play is thought to be most productive with teacher guidance (Vygotsky, 1978). Vygotsky believed that teachers help children reach their highest potential for learning during play, a level of learning that he believed children could not achieve independently. Furthermore, a growing body of intervention research has provided evidence supporting this claim. Specifically, researchers have shown gains in children's executive function, social behavior, and language development attributable to a guided play intervention (Barnett et al., 2008; Bodrova & Leong, 2009; Diamond, Barnett, Thomas, & Munro, 2007). In the current study, however, free play seems to be a more beneficial context than guided play. Free play provided children with more opportunities for activity engagement and peer interactions and those experiences with activities and peers were of higher quality and greater diversity, important play qualities thought to promote skill development. Still, as suggested previously, a limitation of the current study was the lack of detail regarding teachers' behaviors during guided play. Accordingly, future observational research of teacher behaviors during play as they

occur in naturalistic settings (i.e., without play-based interventions) would be helpful in understanding more about guided play.

Although the types of experiences children have during free play have been related to skill development across multiple domains, research examining the direct relations between time spent in free play and children's skill development suggests that teachers may need to use free play more intentionally (Goble, Dissertation Study 2). Furthermore, the incongruence between the current findings for guided play and prior intervention research is likely due to the lack of teacher training in the current sample regarding how to appropriately guide children's play (e.g., Barnett et al., 2008). Accordingly, it is recommended that teacher preparation programs focus on enhancing teachers' free play and guided play strategies.

Table 1

Descriptive Statistics for Proportion of Time Spent Across Classrooms

	M	*SD*	Min	Max	Skew	Kurtosis
Overall						
Free Play	0.26	0.10	0.09	0.57	0.66	0.21
Guided Play	0.35	0.10	0.13	0.66	0.58	0.02
Direct Instruction	0.39	0.10	0.08	0.63	-0.01	-0.34

Note. All items significantly differ at $p \leq .05$. Mean values are based on proportion scores ranging from 0-1. *df* for *t* -tests presented in text.

Table 2

Descriptive Statistics for Proportion of Time Spent Within Classrooms

	M		*SD*	Min	Max	Skew	Kurtosis
Class 1							
Free Play	0.27	a	0.05	0.16	0.34	-0.68	0.05
Guided Play	0.26	b	0.06	0.13	0.36	-0.04	0.64
Direct Instruction	0.46	ab	0.03	0.39	0.52	-0.62	0.29
Class 2							
Free Play	0.24	ab	0.04	0.14	0.31	-0.31	0.97
Guided Play	0.31	ac	0.07	0.21	0.48	1.00	2.25
Direct Instruction	0.45	bc	0.06	0.32	0.54	-0.54	0.68
Class 3							
Free Play	0.26	ab	0.04	0.17	0.35	-0.33	0.55
Guided Play	0.32	ac	0.07	0.19	0.44	-0.28	-0.68
Direct Instruction	0.41	bc	0.06	0.33	0.54	0.83	0.52
Class 4							
Free Play	0.15	ab	0.03	0.10	0.19	-0.55	-0.05
Guided Play	0.49	ac	0.04	0.39	0.56	-0.43	1.59
Direct Instruction	0.36	bc	0.03	0.30	0.40	-0.05	0.06
Class 5							
Free Play	0.26	ab	0.04	0.18	0.32	-0.43	-0.15
Guided Play	0.33	ac	0.03	0.30	0.39	0.80	-0.11
Direct Instruction	0.41	bc	0.03	0.36	0.45	-0.32	-0.87
Class 6							
Free Play	0.16	ab	0.04	0.10	0.23	0.77	0.20
Guided Play	0.58	ac	0.04	0.51	0.66	0.15	-0.24
Direct Instruction	0.26	bc	0.03	0.20	0.32	-0.21	0.98
Class 7							
Free Play	0.35		0.04	0.31	0.43	0.97	0.78
Guided Play	0.33		0.04	0.26	0.39	0.01	-0.85
Direct Instruction	0.32		0.02	0.29	0.35	-0.05	-0.98
Class 8							
Free Play	0.21	ab	0.03	0.16	0.25	0.19	-0.91
Guided Play	0.39	a	0.03	0.34	0.46	0.22	-0.80
Direct Instruction	0.40	b	0.03	0.34	0.44	-0.49	-0.28
Class 9							
Free Play	0.18	ab	0.04	0.13	0.29	1.29	3.28
Guided Play	0.47	ac	0.04	0.39	0.53	0.10	-0.77
Direct Instruction	0.36	bc	0.04	0.29	0.43	0.34	0.06

Note. Items with the same subscript significantly differ within classroom at $p \leq .05$. Mean values are based on proportion scores ranging from 0-1. *df* for *t* -tests within each classroom ranged from 11-19.

Table 2 Continued…

		M		*SD*	Min	Max	Skew	Kurtosis
Class 10								
	Free Play	0.39	a	0.05	0.31	0.45	-0.38	-0.93
	Guided Play	0.42	b	0.07	0.34	0.61	1.39	2.71
	Direct Instruction	0.19	ab	0.04	0.08	0.24	-1.65	3.57
Class 11								
	Free Play	0.13	ab	0.02	0.09	0.17	-0.26	-0.78
	Guided Play	0.33	ac	0.04	0.26	0.38	-0.39	-1.12
	Direct Instruction	0.54	bc	0.04	0.49	0.62	0.90	0.32
Class 12								
	Free Play	0.48	ab	0.05	0.39	0.57	0.11	-0.71
	Guided Play	0.24	ac	0.05	0.15	0.30	-0.42	-0.82
	Direct Instruction	0.28	bc	0.01	0.26	0.31	-0.19	-0.32
Class 13								
	Free Play	0.32	ab	0.03	0.25	0.37	-0.76	0.33
	Guided Play	0.26	ac	0.03	0.22	0.30	0.03	-0.82
	Direct Instruction	0.41	bc	0.03	0.36	0.47	0.05	-0.23
Class 14								
	Free Play	0.37	a	0.05	0.26	0.43	-1.25	0.76
	Guided Play	0.36	b	0.06	0.30	0.48	0.84	-0.37
	Direct Instruction	0.27	ab	0.03	0.22	0.33	0.97	1.81
Class 15								
	Free Play	0.30	ab	0.03	0.25	0.35	-0.10	-0.83
	Guided Play	0.35	a	0.05	0.30	0.48	1.71	3.27
	Direct Instruction	0.35	b	0.06	0.19	0.40	-2.07	4.06
Class 16								
	Free Play	0.21	a	0.03	0.16	0.26	-0.45	-1.55
	Guided Play	0.21	b	0.04	0.16	0.30	0.74	-0.42
	Direct Instruction	0.58	ab	0.03	0.52	0.63	-0.65	0.81
Class 17								
	Free Play	0.27	ab	0.03	0.24	0.33	1.06	0.32
	Guided Play	0.32	ac	0.04	0.27	0.42	1.01	1.22
	Direct Instruction	0.41	bc	0.05	0.26	0.49	-1.55	5.07
Class 18								
	Free Play	0.24	a	0.03	0.19	0.30	0.02	-0.84
	Guided Play	0.26	b	0.04	0.20	0.33	0.56	-0.48
	Direct Instruction	0.49	ab	0.04	0.41	0.56	-0.60	0.92

Note. Items with the same subscript significantly differ within classroom at $p < .05$. Mean values are based on proportion scores ranging from 0-1. df for t-tests within each classroom ranged from 11-19.

Table 3

Descriptive Statistics for Types of Experiences

	Free Play						Guided Play					
	M	*SD*	Min	Max	Skew	Kurtosis	*M*	*SD*	Min	Max	Skew	Kurtosis
Types of Experiences												
Curriculum-based Activity Engagement												
Art	0.09 $_{a}$	0.07	0.00	0.38	1.12	1.67	0.15 $_{a}$	0.08	0.00	0.47	0.49	0.23
Discovery	0.15 $_{b}$	0.09	0.00	0.50	0.97	1.37	0.11 $_{b}$	0.06	0.00	0.30	0.62	0.19
Dramatic Play	0.14 $_{c}$	0.09	0.00	0.48	0.88	1.10	0.07 $_{c}$	0.05	0.00	0.25	1.00	1.06
Library	0.03 $_{d}$	0.03	0.00	0.23	1.41	3.33	0.05 $_{d}$	0.04	0.00	0.20	1.18	2.17
Outdoors and Large Motor	0.24 $_{e}$	0.11	0.00	0.60	0.54	-0.02	0.17 $_{e}$	0.08	0.00	0.44	0.55	0.25
Toys and Games	0.18 $_{f}$	0.10	0.00	0.58	0.75	0.65	0.16 $_{f}$	0.09	0.00	0.50	0.77	0.84
Gender-typed Activity Engagement												
Feminine	0.15	0.11	0.00	0.50	0.96	0.46	0.16	0.09	0.00	0.46	0.49	-0.27
Masculine	0.42 $_{g}$	0.15	0.00	0.73	-0.04	-0.73	0.28 $_{g}$	0.12	0.00	0.64	0.56	-0.04
Neutral	0.26	0.09	0.05	0.60	0.41	0.06	0.27	0.09	0.00	0.70	0.42	1.24
Overall Peer Interactions												
Total Interactons	0.65 $_{h}$	0.13	0.16	0.92	-0.65	0.82	0.46 $_{h}$	0.11	0.14	0.76	0.16	-0.02
Dyadic Interactions	0.39 $_{i}$	0.10	0.07	0.71	0.01	0.36	0.23 $_{i}$	0.08	0.05	0.52	0.51	0.41
Group Interactions	0.25 $_{j}$	0.09	0.04	0.54	0.20	-0.12	0.22 $_{j}$	0.08	0.05	0.52	0.57	0.88
Gender-typed Peer Interactions												
Same-Sex Dyadic Interactions	0.40 $_{k}$	0.15	0.00	0.83	0.19	0.10	0.25 $_{k}$	0.11	0.03	0.54	0.30	-0.39
Other-Sex Dyadic Interactions	0.15 $_{l}$	0.09	0.00	0.44	0.91	0.78	0.09 $_{l}$	0.05	0.00	0.29	0.93	1.41
Same-Sex Group Interactions	0.12 $_{m}$	0.07	0.00	0.33	0.66	0.06	0.08 $_{m}$	0.05	0.00	0.29	0.95	1.03
Other-Sex Group Interactions	0.03 $_{n}$	0.04	0.00	0.25	1.60	4.78	0.03 $_{n}$	0.02	0.00	0.14	1.29	2.42
Mixed-Sex Group Interactions	0.10 $_{o}$	0.06	0.00	0.31	0.38	0.00	0.12 $_{o}$	0.06	0.00	0.33	0.64	1.05

Note . Items with the same subscript significantly differ from free play to guided play at $p \leq .05$. Mean values are based on proportion scores ranging from 0-1. *df* for *t* -tests are presented in text.

Table 4

Descriptive Statistics for Quality of Experiences

	Free Play						Guided Play					
	M	*SD*	Min	Max	Skew	Kurtosis	*M*	*SD*	Min	Max	Skew	Kurtosis
Quality of Experiences												
Activity Engagement												
Passive	0.10	0.06	0.00	0.39	1.29	2.25	0.11	0.06	0.00	0.27	0.63	-0.20
Non-specific	0.08	0.07	0.00	0.35	1.30	2.07	0.07	0.06	0.00	0.28	1.20	1.31
Constructive	0.52 $_{a}$	0.15	0.00	0.87	0.05	-0.32	0.49 $_{a}$	0.13	0.18	0.83	0.02	-0.68
Creative	0.04 $_{b}$	0.04	0.00	0.19	1.30	2.07	0.03 $_{b}$	0.03	0.00	0.18	1.67	4.05
Peer Interactions												
Onlooking	0.05	0.04	0.00	0.24	1.72	4.34	0.05	0.04	0.00	0.27	1.46	3.66
Parallel	0.16 $_{c}$	0.08	0.00	0.45	0.50	0.20	0.20 $_{c}$	0.07	0.05	0.45	0.14	-0.32
Social	0.47 $_{d}$	0.14	0.05	0.78	-0.28	-0.15	0.24 $_{d}$	0.10	0.03	0.54	0.46	-0.31

Note . Items with the same subscript significantly differ from free play to guided play at $p \leq .05$. Mean values are based on proportion scores ranging from 0-1. *df* for *t* -tests are presented in text.

Table 5

Overall Descriptive Statistics for Diversity of Experiences and Simple Effects Comparing Diversity of Experiences in Free Play and Guided Play for Girls and Boys

	Overall											
	Free Play						Guided Play					
	M	*SD*	Min	Max	Skew	Kurtosis	*M*	*SD*	Min	Max	Skew	Kurtosis
Diversity of Experiences												
Diverse Activity Engagement	0.23	0.07	0.08	0.46	0.56	0.99	0.18	0.08	0.04	0.42	0.33	-0.18
Diverse Peer Engagement	0.31	0.12	0.05	0.69	0.39	0.21	0.28	0.12	0.05	0.63	0.21	-0.31

	Girls				Boys			
	Free Play		Guided Play		Free Play		Guided Play	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Diversity of Experiences								
Diverse Activity Engagement	0.22_{a}	0.07	0.16_{a}	0.08	0.23_{b}	0.07	0.19_{b}	0.08
Diverse Peer Engagement	0.31	0.12	0.29	0.12	0.32_{c}	0.11	0.26_{c}	0.12

Note. Items with the same subscript significantly differ between free play and guided play at $p \leq .001$. Mean values are based on proportion scores ranging from 0-1. *df* for *t*-tests are presented in text.

Table 6

Repeated Measures Analyses of Variance Comparing Types and Quality of Experiences

Source	*df*	*F*	$\eta^2_{partial}$
Types of Experiences			
Curriculum-based Activity Engagement			
Curriculum-based Activities (6)	3.81, 1070.10	183.29*	0.40
Context (2)	1.00, 281.00	367.96*	0.57
Curriculum-based Activities X Context	4.32, 1214.76	92.92*	0.25
Gender-typed Activity Engagement			
Gender-typed Activities (3)	1.55, 435.53	205.45*	0.42
Context (2)	1.00, 281.00	367.96*	0.57
Gender-typed Activities X Context	1.89, 529.68	141.32*	0.34
Overall Peer Interactions			
Overall Peer Interactions (2)	1.00, 281.00	148.11	0.35
Context (2)	1.00, 281.00	669.80*	0.70
Overall Peer Interactions X Context	1.00, 281.00	194.15*	0.41
Gender-typed Peer Interactions			
Gender-typed Peer Interactions (5)	1.50, 410.64	690.36*	0.72
Context (2)	1.00, 281.00	536.39*	0.66
Gender-typed Peer Interactions X Context	2.33, 636.77	202.19*	0.43
Quality of Experiences			
Quality of Activity Engagement			
Quality of Activity Engagement (4)	1.43, 401.31	1907.06*	0.87
Context (2)	1.00, 281.00	47.65*	0.15
Quality of Activity Engagement X Context	1.92, 538.16	11.8*	0.04
Quality of Peer Interactions			
Quality of Peer Interactions (3)	1.42, 399.96	933.43*	0.77
Context (2)	1.00, 281.00	643.50*	0.70
Quality of Peer Interactions X Context	1.49, 418.71	644.94*	0.70

Note . Results for 6 multivariate repeated measures analyses of variance. Outcome variables are mean values based on proportion scores ranging from 0-1. When necessary, degrees of freedom adjusted using Huynh-Feldt correction.

* $p \leq .001$

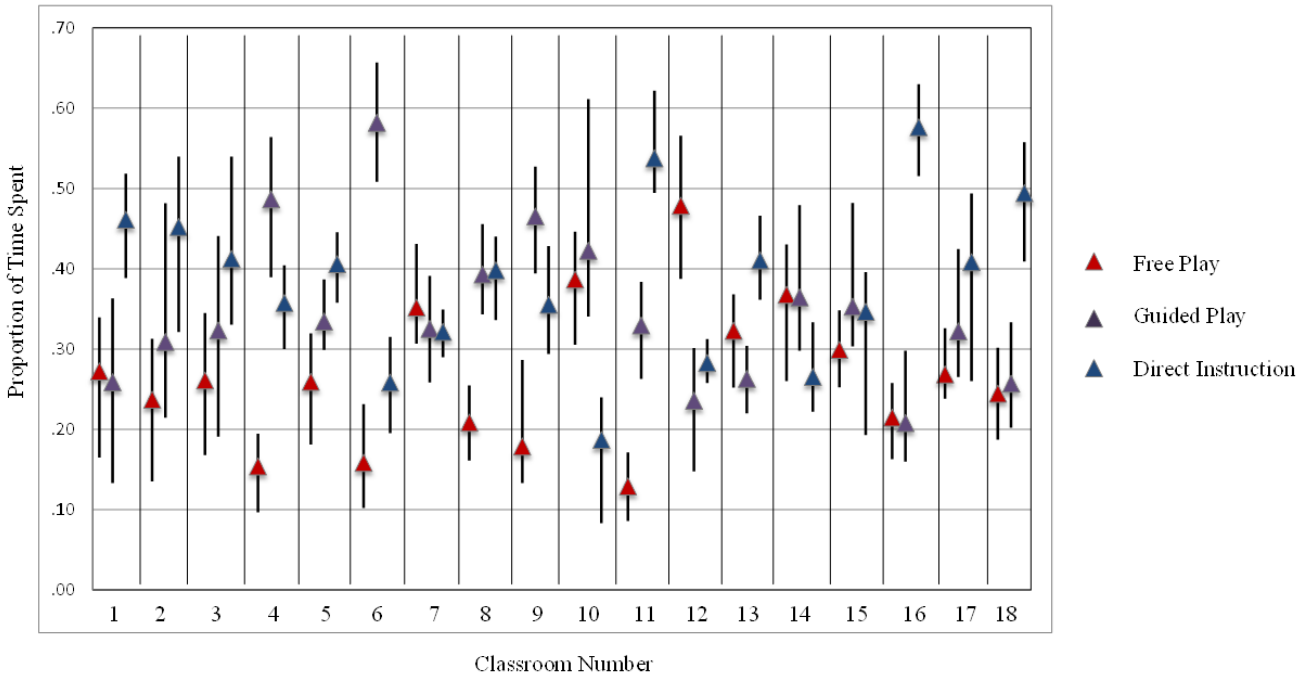

Figure 1. Time Spent in Free Play, Guided Play, and Direct Instruction Within Classrooms

Note. Mean values are based on proportion scores ranging from 0-1.

STUDY 2

Early Educational Approaches in the Modern Classroom: Examining Longitudinal Relations between the Child-Centered and Direct Instruction Approaches on Children's School Readiness within Mixed-Method Head Start Classrooms

The best early educational approach for facilitating young children's school readiness has long been debated; some advocate for the child-centered approach in which teachers serve primarily as a resource to preschoolers' self-initiated learning through free and/or guided play, while others advocate for the direct instruction approach in which preschoolers' learning involves teacher-led direct instruction (Stipek, 2006). Despite the debate, there is a general consensus that children can and do learn in multiple ways, both through play and direct instruction (Hirsh-Pasek & Golinkoff, 2011). In fact, several comparison studies suggest that both approaches facilitate children's learning (Karnes, Schwedel, & Wiliams, 1983; Marcon 1993; 1999; 2002; Miller & Bizzell, 1983; Miller, Dyer, Stevenson, & White, 1975; Schweinhart, Weikart, & Larner, 1986; Stipek & Byler, 2004). As a result, early education programs today typically allot time to both types of instructional approaches. A study of over 700 state-funded early childhood education programs (15% Head Start) across 11 states showed that children spend approximately 30% of their time in play, 50% of their time in direct instruction activities (i.e., individual, small group, large group), and the rest of the time in classroom routines such as meals, transitions, and clean-up (Chein et al., 2010). Although the majority of early education programs use a mixed-method approach (i.e., classrooms using both child-centered and direct instruction approaches), research is lacking regarding how each approach relates to children's school readiness within these mixed-method classrooms.

Ensuring that children are "ready" for school, that is, that they are prepared for the transition to formal schooling, is an important goal of early childhood education programs. School readiness is especially important for low-income racial/ethnic minority children who are at-risk for falling behind academically in elementary school compared to their more affluent, racial/ethnic majority peers (Lee & Burkam, 2002; Rathbun, West, & Walston, 2004). Being prepared to enter formal schooling requires competencies in a number of domains. Although there is no single definition of school readiness, it is generally agreed upon that children's school readiness is comprised of social (e.g., ability to interact with peers), affective (e.g., school liking/avoidance), and academic (i.e., literacy and mathematics skills) competencies (Magnuson, Ruhm, & Waldfogel, 2007). It may be that, within mixed-method classrooms, the best educational approach differs based on the dimension of school readiness being measured. Accordingly, it is important to understand the degree to which children develop various skills through *play* (either in free play, the context in which children can "freely decide" what to do, with whom, and in what area of the classroom, or in guided play, the context in which children's natural curiosity, exploration, and play is guided by teachers to promote learning) and through *direct instruction* (teacher-led interactions either in a whole-group, small-group, or in dyadic activities). By developing an understanding of how each approach contributes to children's learning and development across academic, affective, and social domains, specific recommendations for guiding early education policy and practice can be made regarding how teachers can most effectively use child-centered and direct instruction approaches to address the development of specific skills for at-risk children.

The goal of the present study was to provide scientific evidence regarding how natural variations in each approach -- child-centered and direct instruction -- in mixed-method Head Start preschool classrooms relate to learning and development across academic, affective, and social domains. Specifically, the present research utilized longitudinal path analyses to examine the relations between the child-centered approach, differentiating between free play and guided play, and the direct instruction approach on three domains of school readiness: academic, affective, and social readiness. Results from the present research have the potential to guide policy regarding the quality of early education for children at-risk by specifying the educational approach needed to most efficiently teach specific skills within mixed-method classrooms.

Competing Educational Theories

Although most programs today use a mixed-method approach, throughout American history, the most widespread models of early education could be categorized as using either a child-centered approach (e.g., Bank Street, High/Scope, Montessori; Nourot, 2005) or a direct instruction approach (e.g., Direct Instruction System for Teaching Arithmetic and Reading, DISTAR; Demonstration and Research Center for Early Education, DARCEE; Adams & Engelmann, 1996). Fundamental differences in beliefs about the purpose of early schooling differentiate these two approaches. Grounded in constructivist theories, the child-centered approach to early childhood education views learning as a child-directed process in which teachers are seen as collaborative partners who support children through playful learning experiences (Bransford, Brown, & Cocking, 2000; Vygotsky, 1978).

Within the child-centered approach two types of play can be differentiated, free play and guided play. In free play children can "freely decide" what to do, with whom, and in what area of the classroom (Johnson, Christie, & Yawkey, 1999; Pellegrini, 2009; Sutton-Smith, 2001). In guided play, children's natural curiosity, exploration, and play are thought to be guided by the teachers to promote learning (Bredekamp & Copple, 1997). For example, teachers can guide children's self-directed play by asking questions and expanding on children's own observations (Bransford et al., 2000; Vygotsky, 1978). In general, basic skills learning, such as learning the alphabet, is not emphasized within the child-centered approach. Rather, social and academic skills are meant to be embedded in playful learning experiences with activities and peers. For example, children learn literacy through exposure to environmental print (e.g., product logos, signs, billboards, advertising) and measurement through cooking (Stipek, Daniels, Galluzzo, Millburn, & Salmon, 1998).

The direct instruction approach to early childhood education, in comparison, is derived from behaviorist theories, and views learning as teacher-directed, rather than child-directed. Marcon (1999) described direct instruction as being highly prescriptive in that lessons are "(a) scripted to assure consistency in presentation across teachers, (b) carefully sequenced with task analysis and a comprehensive system for monitoring student progress, and (c) consistently focused on academic instruction with much of the available school day allocated to practice and drill in reading, language, and math" (p. 1). Another definition of the direct instruction approach discusses teacher-led sessions utilized to teach basic skills with a focus on repetition and practice in individual, small-,

and large-group contexts (Golbeck, 2001). The latter definition is likely more consistent with the type of direct instruction that can be observed in Head Start classrooms.

Educational Approaches and School Readiness

Given the fundamental differences between the child-centered and direct instruction approaches, research has been conducted with the goal of identifying the more effective approach (Karnes et al., 1983; Marcon 1993; 1999; 2002; Miller & Bizzell, 1983; Miller et al., 1975; Schweinhart et al., 1986; Stipek, Feiler, Daniels, & Millburn 1995; Stipek et al., 1998). This line of research has resulted in inconsistent findings regarding the educational approach most effective in promoting skills related to school readiness. In terms of academic readiness, support has been provided for the effectiveness of both approaches. One study showed that, by the end of first grade, children who were in direct instruction preschool programs academically outperformed children in child-centered preschool programs (Karnes et al., 1983). However, Miller and Bizzell (1983) showed that children in child-centered preschool programs academically outperformed their peers in direct instruction preschool programs by second grade. Furthermore, Schweinhart and colleagues (Schweinhart et al., 1986) found no significant differences on academic achievement between children in child-centered and direct instruction preschool programs.

When social and affective readiness outcomes are considered, the findings are more consistent and suggest that the child-centered approach may be more beneficial. For example, in a series of studies, one researcher showed that children in classrooms with teachers who had adopted a child-centered approach fared better overall, including having improved interpersonal skills, compared to their peers in direct instruction

classrooms (Marcon 1993; 1999; 2002). Consistent with these findings, Stipek and colleagues (1995; 1998) found that children in classrooms guided by a direct instruction approach tended to display more negative outcomes on measures of motivation, stress, school liking, compliance, independence, and academic self-efficacy than their peers in child-centered classrooms.

As a result of these studies on social and affective readiness, leading early childhood experts began expressing concern about the direct instruction approach for young children, worrying that it may be stifling children's motivation and self-initiated learning. Accordingly, most preschools in the 1980's, 1990's, and early 2000's adopted a child-centered approach whereas direct instruction approaches were reserved for older children. Recently, however, the No Child Left Behind legislation (NCLB, 2001), which included the development of standards and assessments for kindergarten eligibility, initiated a notable shift in early educational practices involving the reintroduction of direct instruction approaches in an effort to prepare children to meet the rigorous academic standards of NCLB (Stipek, 2006). In fact, the majority of Head Start programs follow the Creative Curriculum for Preschool which suggests that "because children have unique learning styles and needs" teachers should utilize both direct instruction and child-centered approaches (Dodge, Colker, & Heroman, 2002; p. 173). With the educational shift towards mixed-method classrooms (i.e., classrooms using both child-centered and direct instruction approaches; also known as combination or intermediate approaches), research is needed to understand how these two approaches are related to children's school readiness when used in the same classroom.

Limitations of Existing Research

Though valuable in the early years of the debate, the prior research comparing educational approaches is limited in the degree to which it can inform practice today. An important limitation of the prior research is that free play and guided play were grouped together as "play" or the child-centered approach, rather than considering them as two distinct forms of play that might have differential effects on readiness outcomes. This is problematic because although both free play and guided play fall within the child-centered approach, theory and research suggest that guided play is more productive for children's learning. Specifically, Vygotsky suggested that children reach their highest potential during play with teacher guidance (Vygotsky, 1978). Furthermore, research evaluating a guided play intervention has shown gains in children's executive function, social behavior, and language development attributable to guided play (Barnett et al., 2008; Bodrova & Leong, 2009; Diamond, Barnett, Thomas, & Munro, 2007). Thus, considering these two types of play as one may be misleading as children's learning and skill development within these may differ.

Another limitation of the existing research is that the child-centered and direct instruction approaches were compared across classrooms. For example, classrooms that had adopted a child-centered approach were compared to classrooms that had adopted a direct instruction approach. This cross-classroom approach is designed to answer the question of which approach might be better. However, these studies were problematic in that efforts were not made to ensure similarity across comparison groups on dimensions other than the instructional approach. Though some studies assigned children to comparison groups matching on child-level characteristics such as gender, SES, and IQ,

none of the comparison groups were matched on school-, classroom-, or teacher-level characteristics. Accordingly, it is difficult to infer from these studies if the group differences are solely attributable to type of instruction or if they are confounded with variations on other factors. Furthermore, classrooms today are rarely guided by a single educational approach. Rather, classrooms today tend to use both the child-centered and direct instruction approaches. Few studies have examined mixed-method classrooms, and this research also has methodological limitations (Marcon, 1993; 1999; 2002; Stipek et al., 1995; 1998). In the research examining mixed-method classrooms, mixed-method classrooms were compared to child-centered classrooms or direct instruction classrooms. Again, these comparison studies are limited in that there are multiple potential confounds between classrooms aside from type of instruction. Furthermore, these studies failed to examine the use of both instructional approaches within the same classroom and, in particular, do not address the advantages of each specific type when used within one classroom. Given that many early education classrooms today tend to use a mix of the child-centered and direct instruction approaches, research is needed to identify how each educational approach promotes specific skills *within* the same classroom, rather than across classrooms.

To date, only one study has examined various educational approaches within mixed-method classrooms. In a study using data from the National Center for Early Development and Learning Multi-State Study of Pre-Kindergarten, Chien and colleagues (2010) examined relations between the child-centered and direct instruction approaches on academic skill development for a diverse sample within mixed-method classrooms. Results of this study suggested that preschool children with the highest levels of free play

(a child-centered approach) made the smallest gains in measures of academic skills from fall to spring. The children who made the largest gains in academic skills were those children with high levels of direct instruction and low levels of free play. Interestingly, children with high levels of free play accompanied by scaffolded interactions with peers or teachers during play (i.e., peer or teacher builds on child's initiations using visuals, concrete objects, and gestures to help children learn) had greater gains from fall to spring than did the children with high levels of free play. These findings suggest that, in mixed-method classrooms, the direct instruction approach is most effective for academic skills; however, within the child-centered approach, guided play may be more effective than free play for promoting academic skills.

Though the research by Chien and colleagues has provided important insights into which educational approach is most effective for promoting children's academic readiness within mixed-method classrooms, it does not provide insights into other domains of school readiness. School readiness involves more than academic skills, and prior research on educational approaches suggests that the child-centered and direct instruction approaches may not relate to all types of school readiness in the same way. Accordingly, the present study aims to replicate and expand the work of Chien and colleagues and to explore in a more fine-grained way the longitudinal role of the child-centered approach, including free play and guided play, and the direct instruction approach within mixed-method classrooms in a broader range of school readiness skills for at-risk children. Compared to prior studies, the results from this study provide a more comprehensive understanding of how child-centered and direct instruction educational

approaches facilitate Head Start children's overall school readiness, including academic, affective, and social domains, within mixed-method classrooms.

Present Study

The goals of present study were to longitudinally examine the effects of the child-centered approach, including free play and guided play, and the direct instruction approach on children's academic, affective, and social readiness. The present study extended previous research by using naturalistic observations to longitudinally examine how variability in the amount of time children spend in free play, guided play, and direct instruction in Head Start preschool classrooms related to learning and development across multiple domains of school readiness by the end of preschool. For the purpose of the current study, free play was defined as any time during play in which the child is not directly interacting or within a 5-foot radius of the teacher. Guided play was defined as any time during play in which the child was directly interacting with the teacher or within a 5-foot radius. These definitions are consistent with previous research comparing free play and guided play (Goble, Dissertation Study 1). Direct instruction was defined as any time the child was engaged in a small or large group activity directed by the teacher. To address the goals of the present study, a number of hypotheses were made (see Figure 1).

Academic Readiness Hypothesis

In the literature comparing child-centered and direct instruction approaches, the findings for academic readiness are relatively consistent. When used independently, both approaches show positive relations with academic readiness (Karnes et al., 1983; Marcon 1993; 1999; 2002; Miller & Bizzell, 1983; Miller et al., 1975; Schweinhart et al., 1986; Stipek & Byler, 2004). In the most recent, the largest, and the only study that has

compared these approaches within mixed-method classrooms, however, researchers found that higher levels of direct instruction were positively related to academic readiness (Chein et al., 2010). Children with the highest levels of free play made the smallest gains academically. Interestingly, although their gains were not greater than were those of children with the highest levels of direct instruction, children in the scaffolded play profile, characterized by high levels of play accompanied by scaffolded interactions with peers or teachers during play, had greater gains from fall to spring than the children in the free play profile. These findings suggest that, aside from direct teacher instruction, either at the individual or group level, the context that may be most conducive to children's learning and development is a child-centered approach through guided play. Using this study and the previous research as a basis, the following hypothesis was made regarding academic readiness.

> H1: Greater levels of direct instruction and of child-centered instruction through guided play in the fall would be positively related to children's academic readiness (i.e., literacy, mathematics) in the spring. There would be no significant relation between levels of child-centered instruction through free play in the fall and children's academic readiness in the spring.

Affective Readiness Hypothesis

Longitudinal research conducted by Stipek and colleagues (1998) showed that children fared better on measures of affective readiness in classrooms where their teacher adopted a child-centered approach rather than a direct instruction approach. Specifically, compared to children in direct instruction classrooms, children in child-centered

classrooms scored higher on measures of school liking, compliance, independence, and self-efficacy. Given these findings, we might expect that children with high levels of play, where children's learning is self-initiated, would show positive changes in enjoying school. In contrast, children with high levels of direct instruction, where children have far less autonomy concerning their learning, may not show gains in school liking. Similar to the hypothesis for social readiness, one hypothesis was made regarding affective readiness.

> H2: Greater levels of child-centered instruction (free play and guided play) in the fall will be positively related to children's affective readiness (i.e., school liking) in the spring. No significant relation is hypothesized between levels of direct instruction in the fall and children's affective readiness in the spring.

Social Readiness Hypothesis

In a study examining classrooms guided by either a highly structured direct instruction approach, a moderately structured child-centered approach, or a low structured child-centered approach, Miller and Bizzell (1983) showed that children in both types of child-centered programs had greater gains on measures of social readiness (i.e., social participation) than did their peers in direct instruction programs. Given the play-based nature of the child-centered programs, we might expect children with high levels of play to have increased opportunities to engage with peers and build social skills. Furthermore, we might expect children with greater levels of direct instruction to have limited time to engage with peers and build social skills. With this in mind, the following hypothesis was made regarding social readiness.

H3: Greater levels of child-centered instruction (free play and guided play) in the fall would be positively related to children's social readiness (i.e., social development, peer interaction skills, prosocial behavior) in the spring. There would be no significant relation between levels of direct instruction in the fall and children's social readiness in the spring.

The data for this study are drawn from a large NICHD-funded five-year longitudinal study with Head Start children (Co-PIs Carol Martin, Richard Fabes, and Laura Hanish). As the largest federally funded early childhood education program in the United States, understanding predictors of school readiness within mixed-method Head Start classrooms has important implications for policy relevant to low-income racial/ethnic minority children. This project utilizes a unique observational method (Martin & Fabes, 2001) that provides extensive child-level data on time spent in each instructional context as well as multi-method multi-reporter reports of children's school readiness.

Method

Participants

Participants were preschool children enrolled in 18 classrooms in an urban southwestern city. Classrooms were selected in collaboration with Phoenix and Maricopa County Head Start Programs, and families were recruited 2-3 weeks into the start of the academic school year at pre-arranged parent meetings. Recruitment took place at these parent meetings and in-person at pick-up and drop-off times. The consent rate was 99% at recruitment (N= 308 out of a possible 311). Children who were chronically absent or who left in the fall semester were dropped from the analyses (n = 25). This was

determined by their availability for classroom observations (discussed in more detail in the Procedures and Measures section). Additionally, data were collected in three waves over three years. Children who repeated preschool during years 2 and 3 of data collection (n = 16) had data collected twice; only data from the second year was used in analyses to prevent dependencies.

The final sample consisted of N = 283 preschoolers (M age = 52 months at beginning of the fall term; range: 37 – 60 months). Almost half of the participants were girls (48%), the ratio of girls to boys per classroom ranged from 29-63% girls, and 11 of 13 (85%) teachers were female. The majority of participants (70%) were Mexican or Mexican-American; 59% of the participants primarily spoke Spanish. Relatively few of the participants were Anglo-American (8%), African-American (7%), or Native-American (1%). Race/ethnicity was "other" or "unknown" for the remaining 14% of the sample. Participants were predominately of low socioeconomic status (82% below $30,000). Over half of the children (59%) came from two-parent families, and the rest of the children (41%) were from various types of single parent homes.

Procedures and Measures

To assess the amount of time children spent in each instructional context (i.e., free play, guided play, direct instruction), naturalistic observational data were collected in preschool classrooms multiple times a day, two to three times a week over the fall semester. Observational data were subsequently aggregated to obtain the predictor variables. At the entrance to preschool and at the end of their preschool year covariate and outcome measures were assessed using multiple measures and multiple reporters, including observer ratings, lead teacher ratings, and direct child assessments. To make

analyses more manageable given the number of outcome measures that were collected, data were reduced to create a single measure for each type of readiness - academic, affective, and social (see Data Reduction).

Measurement of predictors. Observational data of the instructional contexts were collected using a scan observation protocol in which children were observed indoors and outdoors during free-play (e.g., children freely decided what to do, with whom, and where to do it), semi-structured play (e.g., play with a limited choice between activities), direct instruction small group (e.g., children were broken out in small groups and instructed by teacher, no choice of activity), and direct instruction large group (e.g., all kids were simultaneously instructed by teacher, no choice of activity) several times per week, in 10-second scans (Martin & Fabes, 2001). Only those observations that occurred during the fall semester were included in the current study.

During each scan observation, trained classroom observers (8-10 per year; 92% female) followed a randomized list of children that was reordered mid-semester to prevent biases. Observers would begin at the top of the list each day, complete the entire list and then begin at the top again. For the 283 children participating in the present study, a total of 27,175 10-sec observations were collected during the fall semester in 3 years of data collection (M = 96.02 observations per child, SD = 37.17; range = 24-176). The large range in observations recorded for each child was due to differences in attendance and availability of the children. As mentioned previously, children with fewer than 20 observations in the fall semester were dropped from analyses to control for chronic absenteeism or because they left the school (n = 25).

To determine reliability, two observers independently coded the same child. During reliabilities, coders rotated through the class list to ensure that reliabilities were conducted for each child. A total of 6,480 simultaneous observations, or 10% of all observations across the whole school year, were double coded to obtain kappas for the study variables.

Categorization of instructional learning context. Coders recorded which of four instructional contexts children were in for each observation: free-play, semi-structured play, direct instruction small group, and direct instruction large group. Kappas ranged from .77 to .97 for all context codes. Subsequently, the four instructional contexts were categorized into three instructional learning contexts of interest for the present study: free-play, guided play, and direct instruction (which included small group and large group direct instruction). Following previous research, to categorize free play and guided play, for every observation that occurred during play, coders recorded whether or not there was a teacher in the immediate vicinity (within 5-ft) or a teacher who was outside the immediate vicinity but was clearly interacting with the target child (Goble, Dissertation Study 1). All observations during play in which there was a teacher within a 5-foot radius of the target child or in which a teacher was interacting with the target child were categorized as guided play. All other observations during play (i.e., target child was engaged in play alone or with peers but not interacting with teachers or within close proximity to a teacher) were categorized as free play. Direct instruction included observations during small and large group instruction. Proportion scores for the percent of time children were observed in each context were then created using total observations. This procedure accounted for variations in observations due to absences.

For example, the number of times a child was observed engaging in free play (i.e., playing alone or with peers but not interacting with teachers or within close proximity to a teacher) was summed and divided by the total number of times that child was observed, including free play, guided play, and direct instruction.

Measurement of covariates. Observer ratings and direct child assessments of children's school readiness skills at the entrance to preschool (fall semester) were utilized as covariates. Classroom observers completed questionnaires comprised of single items reflecting children's affective and social readiness. Children's verbal abilities (PPVT) were also directly measured at the beginning of the preschool year as a proxy for academic readiness.

Global Observer Ratings. Classroom observers completed a global assessment for each participating child halfway through (Fall 1) and at the end (Fall 2) of the fall semester. Included in this questionnaire were single-items rated on a 5-point scale (1 = *Not at all true* to 5 = *Very true*). Single-items collected at the beginning of the fall semester and halfway through the fall semester included: enjoys school and socially competent. These single items from each time point were combined to create an average score for each of the two ratings. These single item indicators were significantly correlated ($r = .76$, $p \leq .001$)

Peabody Picture Vocabulary Test. To account for children's verbal ability (as a proxy for academic readiness) at entry to preschool, the Peabody Picture Vocabulary Test (PPVT-III; Dunn & Dunn, 1997) and the Spanish equivalent of the test (TVIP; Dunn, Padilla, Lugo, & Dunn, 1986) were administered at the beginning of the fall semester. Children were assessed in either English or Spanish based on teachers' recommendations

(52% were assessed in English and 48% were assessed in Spanish). The TVIP was developed using the most appropriate items from the PPVT-III for a Spanish-speaking population. The PPVT-III and TVIP have the same number of total questions and most questions are identical, although some items differ between versions. Both tests are reliable and valid measures of children's vocabulary knowledge (Dunn & Dunn, 1997; Dunn et al., 1986). Additionally, both versions were normed using age-referenced groups. Specifically, the PPVT-III and TVIP were normed using individuals ranging from 2.5 to 90 years of age, and the TVIP norming process included Spanish-speaking children in public school and Spanish-speaking Head Start children. Within the present study, the raw scores (sum of all correct responses) of the PPVT-III and TVIP were used because the standardized scores were normed on different populations and were not comparable.

Measurement of outcomes. To examine children's school readiness at the end of their preschool year, a number of different measures were collected. Lead teachers completed questionnaire packets including several measures of children's academic, affective, and social readiness at the end of the spring semester. Children's academic readiness was also directly assessed at the end of their preschool year.

Child Behavior Scales. As a measure of children's social adjustment, lead teachers reported on each child in their class using the Child Behavior Scales (CBS; Ladd & Profilet, 1996). The CBS consists of five subscales related to young children's behavioral and social competence: (1) Asocial Behavior, (2) Hyperactive-Distractible, (3) Exclusion by Peers, (4) Prosocial with Peers, and (5) Socially Anxious-Fearful Behavior. Lead teachers rated children on a 3-point scale (1 = *doesn't apply* to 3 = *certainly applies*). Only the Asocial Behavior, Exclusion by Peers, and Prosocial with Peers

subscales were used in the current study because the focus was on social skills (or lack of social skills) rather than emotional (i.e., Socially Anxious-Fearful Behavior) or behavioral (i.e., Hyperactive-Distractible) characteristics. These three subscales showed good reliability and validity (alphas ranged from .87 to .88).

Penn Interactive Peer Play Scales. A second measure of children's social readiness was a modified version of the Penn Interactive Peer Play Scales (PIPPS; Fantuzzo, Gaudio Weiss, Atkins, Meyers, & Noone, 1998). Lead teachers were asked to indicate on a 4-point scale (1= *never* to 4 = *always*) how frequently they observed various peer interactive behaviors in a particular child. Three reliable dimensions of the PIPPS have been identified, and these were used in the present study: (1) Play Interaction (children's play strengths), (2) Play Disruption (behaviors that interfere with peer play – aggression, destroying others' property, etc.), and (3) Play Disconnection (nonparticipation in peer play). The PIPPS has been widely used and the modified version has shown good reliability and validity with the current sample (alphas range from .83 to .92).

Teacher Developmental Profile. Lead teachers completed a 40-item questionnaire, the Teacher Developmental Profile (TDP), to assess young children's social, school-specific, and academic adjustment (Fabes, Martin, Hanish, Anders, & Madden-Derdich, 2003). They were asked to compare each child to the other children in his/her class and rate him/her on a variety of skills including (5-8 items each): (1) Reading and Writing, (2) Logical Thinking and Use of Numbers, (3) Perceptual-Motor Development, (4) Social Development, and (5) School-Specific Instrumental Development (e.g., works independently; participates in class, etc.). Each item is judged using a 4-point scale (1 = *Not yet* to 4 = *Proficient*) reflecting the degree to which the child has accomplished a

particular skill or behavior (e.g., can recognize numbers from 1 to 20; enjoys being in school). To maintain focus on academic, affective, and social measures of school readiness, only the Reading and Writing, Logical Thinking and Use of Numbers, and Social Development subscales were used in the current study. The subscales showed good internal reliability in the current sample (alphas range from .92 to .93).

Teacher Rating Scale of School Adjustment. Lead teachers completed an adapted version of the Teacher Rating Scale of School Adjustment (TRSSA; Birch & Ladd, 1998). The original 52-item measure was reduced to 21-items, which tapped four subscales: (1) Cooperative Participation (e.g. follows teacher's directions); (2) Self-Directedness (e.g. seeks challenges); (3) School Liking (e.g., likes to come to school); and (4) School Avoidance (e.g. makes up reasons to go home from school). Teachers rated the degree to which items describe the child using a 3-point rating scale (1 = *Doesn't Apply* to 3 = *Certainly Applies*). As a measure of affective readiness, only the School Liking and School Avoidance subscales were used for the current study; these subscales had good internal consistency (alphas were .84 to .65, respectively).

Woodcock-Johnson Tests of Achievement. Children were assessed in the spring using subscales from the Woodcock-Johnson Tests of Achievement III (WJ-III; Woodcock, McGrew, & Mather, 2001; Spanish equivalent, Batería-III Woodcock-Muñoz, Muñoz-Sandoval, Woodcock, McGrew, & Mather, 2005) that were developmentally appropriate for preschool children. Children were administered three subscales: (1) Word Identification (e.g. naming letters and reading words aloud from a list); (2) Passage Comprehension (e.g., orally supplying the missing word removed from a sentence or very brief paragraph); and (3) Applied Problems (e.g., mathematic word

problems). The subscales were administered in children's preferred language, English or Spanish (a total of 48% of the children chose to take the test in Spanish). The WJ-III subscales provide two types of scores, the Standard Score (*SS*) and the W Score (*W*). *W* scores (converted raw scores) are a transformation of the Rasch ability scale and were utilized in the current study because they are compatible across both versions of the test (i.e., English and Spanish). Muñoz-Sandoval et al. (2005) employed Item Response Theory (IRT) methods with 2000 Spanish-speaking individuals and concluded that equal levels of competence were being measured by both the English and Spanish assessments (Woodcock & Munoz-Sandoval, 1993; 1996). Research has shown that the WJ-III and the Batería-III are both reliable and valid measures of children's achievement and yield comparable scores (Schrank, McGrew, Ruef, & Alvarado, 2005; Schrank, McGrew & Woodcock, 2001).

***Data reduction*.** As mentioned previously, data reduction techniques were used to make the data more manageable for analyses. Each of the outcome subscales theoretically fits into a different school readiness domain. *Academic readiness* was measured by the Teacher Developmental Profile (TDP; reading/writing and logic/numbers) subscales as well as the Woodcock-Johnson Tests of Achievement (WJ-III; word identification, passage comprehension, applied problems). *Affective readiness* was measured by the Teacher Rating Scale of School Adjustment (TRSSA; school liking, school avoidance). *Social readiness* was measured by the Child Behavior Scales (CBS; asocial behavior, exclusion by peers, prosocial behavior), Penn Interactive Peer Play Scales (PIPPS; interaction, disruption, disconnection), and Teacher Developmental Profile (TDP; social development subscale).

The first step to reduce the data was to create composites for each scale. Because the Teacher Developmental Profile (TDP) contains subscales that relate to theoretically different measures of school readiness (i.e., social development subscale – social readiness; reading/writing and logic/numbers – academic readiness), composites were not created for these subscales. All other multi-subscale measures (CBS, PIPPS, TRSSA, and WJ-III) could be theoretically reduced to measure a single type of readiness. Data reduction techniques such as aggregation are thought to provide a more reliable and stable measure than the use of a single subscale (Rushton, Brainerd, & Pressley, 1983). Correlations between subscales within a scale were examined to determine if a composite could be created for each of the following multi-subscale measures: CBS, PIPPS, TRSSA, and WJ-III. All were significantly correlated in the expected direction, with the exception of the WJ-III word identification and passage comprehension subscales (see Table 1). Because both word identification and passage comprehension subscales were significantly correlated with the applied problems subscales within the WJ-III, a composite was created for the WJ-III. Thus, four composites (CBS, PIPPS, TRSSA, WJ-III) were created by summing the raw subscale scores and dividing by the number of subscales administered (i.e., 2 or 3) to create a mean score for each scale. For example, the composite for CBS was created by summing the raw subscale scores for asocial behavior, exclusion by peers, and prosocial behavior and dividing by three. Furthermore, the WJ-III composite was adjusted (divided by 100) to be consistent with the scale of the other composites.

The scale composite for the TRSSA (school liking, school avoidance) was used in analyses as the outcome measure for affective readiness. To further reduce the number of

measures for academic and social readiness, a confirmatory factor analysis was conducted using the created scale composites and the TDP subscales. The scale composite for the WJ-III and the academic TDP subscales (reading/writing and logic/number) were utilized in a confirmatory factor analysis as measures of an academic readiness factor. Similarly, the scale composites for the CBS and PIPPS and the social TDP subscale (social development) were utilized in the same confirmatory factor analysis as measures of a social readiness factor. The confirmatory factor analysis is discussed later.

Multi-level Data

Because the data used in the present study were clustered within teacher/classroom, the study variables were examined for potential differences that relate to children's teacher/classroom. A design effect greater than 2 indicates that the hierarchical nature of the data should be taken into account in analyses (Muthén, 1994). Design effects for the school readiness measures (CBS, PIPPS, TDP, TRSSA, WJ-III) ranged from 2.06 to 4.83, which suggest that there were dependencies in the data within teacher/classroom. Ideally, multilevel analyses (using *M*plus) would be utilized to analyze the clustered data. Unfortunately, a minimum of 30 units at each level of analyses is the recommended rule of thumb for multilevel analyses and the current study had only 18 teachers/classrooms (Bell, Ferron, & Kromrey, 2008). It is possible to account for clustering by including children's teacher/classroom as a covariate in analyses testing the study hypotheses; however, this method was not utilized because a large portion of the variance in children's school readiness that would be accounted for by controlling for children's teacher/classroom would be overlapping with the variance that would be

accounted for by the variables of interest—namely, time spent in free play, guided play, and direct instruction. For these reasons, no techniques were employed to address the multi-level nature of the data.

Results

The goal of this study was to examine the effects of the child-centered approach, including free play and guided play, and the direct instruction approach on children's academic, affective, and social readiness. In the first section, preliminary analyses of the study indices are presented. In the second section of the results, I assessed, using longitudinal path models, the relations between time spent in each instructional context (i.e., free play, guided play, direct instruction) during the fall semester of preschool and each readiness outcomes (i.e., academic, affective, and social) at the end of the spring semester of preschool.

Preliminary Analyses

Attrition and missing data. Of the 283 children with complete data in the fall of their preschool year, 243 children had complete data on measures of school readiness in the spring of their preschool year. A total of 40 children had some amount of missing data on measures of school readiness. Cross-tabulation analyses and independent samples *t*-tests showed that children for whom complete data were not available did not differ from the children with complete data on language of direct assessment (English or Spanish), family income (high or low poverty; high poverty = family SES below $30,000 per year), gender (girl, boy), covariates (i.e., initial verbal ability and observer ratings of school enjoyment and social competence), or any of the predictor variables. There were, however, significant differences between children with complete data and children with

missing data on ethnicity and age, $\chi^2(1) = 15.34$ and $t(281) = 2.57$, respectively, $ps \leq .05$. Specifically, non-Hispanic children ($n = 22$) were more likely than Hispanic children ($n = 17$) to have missing data. Furthermore, children with missing data (M age =50.33) were significantly younger than children with no missing data (M age = 52.52).

The main data analyses (described below) were primarily conducted with *M*plus 6 (Muthén & Muthén, 1998-2010), which uses a full information maximum likelihood (FIML) estimation method to generate estimates based on the available, observed data. Modern techniques for dealing with missing data such as FIML produce fairly unbiased estimates, assuming that data are missing at random (MAR; Enders, 2010). Methods are not currently available to directly test the MAR assumption; however, methods such as comparing patterns of missingness to the remaining measured variables and attrition analyses to determine whether children who discontinue participation at some point during the preschool year differ meaningfully from those who remain in the study across the entire preschool year were conducted. The MAR assumption was believed to be reasonable for these data because few significant differences were found between participants with missing data and participants with complete data and those variables that significantly differed (age and ethnicity) were considered as covariates and included in the model as covariates or auxiliary variables to increase the likelihood that the MAR assumption is not violated (Enders, 2010).

Preliminary analyses. Preliminary analyses were conducted to examine the descriptive statistics, skewness, and kurtosis of all study variables (see Table 2). For all variables, skewness and kurtosis were low and did not indicate substantial deviations from normality (Tabachnick & Fidel, 2012). Repeated measures analyses of variance and

follow-up analyses were conducted to test for differences in outcome variables due to children's ethnicity, language of direct assessment, family income, and gender. Analyses examining ethnicity and language of direct assessment revealed no significant differences on the study variables, *F*s(1, 241) = 0.02 and 2.71, respectively, *ns*. Results also revealed that high and low poverty children did not significantly differ on any study variables, $F(1, 209) = 3.80$, *ns*. Significant differences were found, however, between girls and boys on the study variables, $F(1, 241) = 25.37$, $p \leq .001$. Specifically, the Head Start teachers rated girls higher on academic, affective, and social domains than they rated boys, and girls outperformed boys on measures of academic achievement (see Table 3). Accordingly, child gender was included as a covariate variable in analyses testing the main study hypotheses.

Zero-order correlations. Pearson product moment correlations were conducted to examine relations among the outcome composites and subscales. As can be seen in Table 4, many of the outcome composites and subscales are correlated within domain. These significant positive correlations suggest that the academic and social readiness domains can be further reduced using a confirmatory factor analyses. Two additional sets of correlations were conducted: (1) to examine the zero-order relations between the predictor variables and the outcome composites and subscales and (2) to examine whether age, initial verbal ability, and global observer ratings of children's school enjoyment and social competence in the fall were related to the outcome variables and if they should be considered as covariates. Correlations between the predictors, child age, initial verbal abilities, observer ratings, and the study outcomes are presented in Table 5. Given that age, initial verbal ability, and observer ratings were related to several study

variables, all four variables were included as covariates in addition to child gender in analyses testing the main study hypotheses.

Measurement model. Given the significant positive correlations among subscales and composites measuring academic and social readiness, a confirmatory factor analysis (CFA) was conducted to determine if latent factors could be created for academic and social readiness. As mentioned previously, the scale composite for the TRSSA (school liking, school avoidance) was used in analyses as the outcome measure for affective readiness and no further data reduction was needed. Thus, a measurement model that included two factors was estimated: academic readiness and social readiness. The academic readiness factor had 3 indicators: composite score for the Woodcock-Johnson Tests of Achievement (WJ-III) and the reading/writing and logic/numbers subscales of the TDP. The social readiness factor also had 3 indicators: composite scores for the Child Behavior Scale (CBS) and Penn Interactive Peer Play Scales (PIPPS), and the social development subscale of the Teacher Developmental Profile (TDP).

Based on the MAR assumption, all models were estimated using FIML in M*plus* 6 (Muthén & Muthén, 1998-2010). Model fit was assessed using four alternative fit indices: Chi-Square Statistic (χ^2), the Comparative Fit Index (CFI), the Root-Mean-Square Error of Approximation (RMSEA), and the Standardized Root-Mean-Square Residual (SRMR). The initial model had poor fit to the data, $\chi^2(8) = 46.63$, $p \leq .05$, CFI = .96, RMSEA = .14, SRMR = .05. Examination of modification indices indicated that estimating the residual covariance of the CBS composite with the PIPPS composite would improve fit. This revised model was tested and had reasonable fit to the data, $\chi^2(7) = 18.13$, $p \leq .05$, CFI = .99, RMSEA = .08, and SRMR = .04. All loadings were

significant and in expected directions (see Table 6). There were no other theoretically relevant modifications to be made. The final measurement model was used in analyses to test the study hypotheses. Unfortunately, the inclusion of covariates and predictors in all models resulted in a degradation of model fit. Due to the size of the sample relative to model complexity, further efforts were made to reduce the number of parameters in the model. To do this, weighted composites were created for the academic and social readiness outcomes using lambdas from the confirmatory factor analyses. A linear combination for each readiness outcome was created in which the products of the factor loadings (e.g., λ_1) and variables (e.g., X_1) were summed to create a composite. Measurement error variance was also calculated for each composite using the thetas or unstandardized measurement error variances of the indicators estimated in the CFA. Matrix algebra was utilized to create the measurement error variances for academic and social readiness and the social readiness measurement error variance took into account the residual variance between the CBS and PIPPS. In the models testing study hypotheses, the readiness composites were used to form two single-indicator factors where the factor measurement error variance was fixed at 1 and the composite measurement error variance was fixed using the calculated measurement error variance.

Analyses of Study Hypotheses

Path analyses in a structural equation modeling (SEM) framework were used to test the study hypotheses (see Figure 1). Due to data dependency in the predictor variables, three separate models were run for free play, guided play, and direct instruction. In each model, children's academic and social readiness was measured using the weighted composites created from the confirmatory factor analyses and affective

readiness was measured by the Teacher Rating Scale of School Adjustment Scale (TRSSA) composite. Analyses were conducted in a stepwise manner. In the first step, only the predictors and outcomes were included in the models to examine the study hypotheses and relations between the study variables without covariates. These models were fully saturated because each measure of readiness was regressed on each predictor (in three separate models). Accordingly, only the path estimates were reported for these models because fit statistics are uninterpretable in fully saturated models.

Subsequently, all three models were examined including covariates -- children's gender, age, initial verbal abilities, and observer ratings for enjoys school and socially competent -- to determine the amount of variance accounted for in measures of school readiness by the instructional context, above and beyond child-level characteristics. Following preliminary analyses, gender and observer ratings for enjoys school were included as covariates for all readiness outcomes, age and observer ratings for social competence were included as covariates on academic and social readiness, and initial verbal abilities were included as control on academic and affective readiness. Although no significant differences were found on the study variables between Hispanic and non-Hispanic children, missing data patterns did significantly differ for these groups, accordingly, ethnicity was included as an auxiliary variable. Model fit was evaluated with the Chi-Square Statistic (χ^2), the Comparative Fit Index (CFI), Standardized Root Mean Square Residual (SRMR), and Root Mean Square of Approximation (RMSEA).

Child-centered approach: free play. In the model examining free play, it was hypothesized that time spent in free play in the fall would be significantly positively related to affective and social readiness in the spring. None of the hypothesized relations

were supported. There were, however, significant negative relations between time spent in free play during the fall and measures of affective (B = -0.22, β = -0.22, $p \leq .05$) and social (B = -4.67, β = -1.73, $p \leq .01$) readiness by the end of the spring semester in the model without covariates. The model including covariates showed good fit to the data, $\chi^2(3) = 3.29$, $p = .35$, CFI = 1.0, RMSEA = .02, SRMR = .02 (see Figure 3). However, only the significant negative relation between time spent in free play during the fall and social readiness by the end of the spring semester remained significant (B = -4.45, β = -1.66, $p \leq .01$).

Child-centered approach: guided play. In the model examining guided play, it was hypothesized that time spent in guided play in the fall would be significantly positively related to all school readiness outcomes (i.e., academic, affective, and social) in the spring. Again, none of the hypothesized relations were supported. The proportion of time spent in guided play in the fall was not significantly related to school readiness outcomes in the spring in the model without covariates. The addition of the covariates to the model examining guided play had good overall fit, $\chi^2(3) = 3.29$, $p = .35$, CFI = 1.0, RMSEA = .02, SRMR = .02 (see Figure 4). Still, the proportion of time spent in guided play in the fall was not significantly related to school readiness outcomes in the spring.

Direct instruction. In the model examining direct instruction, it was hypothesized that time spent in direct instruction in the fall would be significantly positively related to academic readiness in the spring. Although the hypothesized relation between direct instruction and academic readiness was not supported, there were significant positive relations between time children spent in direct instruction in the fall and measures of affective (B = .27, β = 1.39, $p \leq .05$) and social (B = 4.95, β = 1.83, $p \leq .001$) readiness in

the spring in the model without covariates. Consistent with prior models, the model containing covariates had good fit with the data, $\chi^2(3) = 2.41$, $p = .49$, CFI = 1.0, RMSEA = .00, SRMR = .01 (see Figure 5). The significant relation between direct instruction and social readiness remained significant in the model including covariates ($B = 4.62$, $\beta = 1.72$, $p \leq .001$). The relation between direct instruction and affective readiness, however, went from significant to trend level ($B = .20$, $\beta = 1.04$, $p \leq .10$).

Summary

Results of the current study indicate that the proportion of time children spend in free play and direct instruction is related to their social readiness. In particular, results revealed that time spent in free play was a negative predictor and time spent in direct instruction was a positive predictor of social readiness. Results also revealed that the proportion of time children spent in free play, guided play, and direct instruction did not significantly predict academic or affective readiness after covariates were added to the models.

Discussion

The majority of early education classrooms today utilize both the child-centered (i.e., free play and guided play) and direct instruction approaches; however, little is known about how these approaches relate to children's learning within mixed-method classrooms (i.e., classrooms utilizing both the child-centered and direct instruction approaches). The goal of this study was to examine relations between direct instruction, free play, and guided play and three indicators of early school readiness (academic, affective, and social) for children in mixed-method Head Start classrooms. Given theoretical and empirical support for examining free play and guided play separately,

specific hypotheses were made for each context. It was hypothesized that time spent in guided play and direct instruction would both be positively related to academic readiness and time spent in free play and guided play would both be positively related to affective and social readiness. Overall, the results from this study provided little support for these hypotheses. Below I discuss potential explanations for the lack of support for the study hypotheses, the study strengths and limitations, directions for future research, and implications for policy and practice.

Child-Centered Approach: Free Play and Guided Play

The first issue addressed in the present study concerned the child-centered approach. Free play and guided play were examined separately to assess how time spent in each context contributes to academic, affective, and social outcomes for Head Start children in mixed-method classrooms. Taken together, the present findings for free play and guided play indicated that the use of the child-centered approach was not particularly productive for children's school readiness as assessed in mixed-method classrooms at the end of Head Start.

Academic readiness. Guided play, but not free play, was expected to positively relate to children's academic readiness. This hypothesis was based on previous intervention research and the well-entrenched idea, derived from Vygotsky's theory, that teachers guide play in ways that promote academic skill development (Barnett et al., 2008; Bodrova & Leong, 2009; Diamond et al., 2007; Vygotsky, 1978). Despite theoretical and empirical arguments that guided play promotes children's learning, the findings of the current research did not demonstrate a positive relation between time spent in guided play and academic readiness. Consistent with the present findings,

another study has suggested that teacher involvement in play is not always associated with the types of learning experiences that are thought to promote academic skill development. Specifically, Goble (Dissertation Study 1) showed that children engaged in lower quality play with activities during guided play than during free play and the quality of children's play with toys and activities has been related to children's cognitive development (Dunn, 1993). The results of the current study suggest that guided play, as it occurs naturally, does not relate to children's academic readiness.

Affective readiness. For years, academic scholars and early childhood educators have advocated for the inclusion of play in preschool classrooms because play is an enjoyable experience for young children. For that reason, we would expect that the more opportunities children have to play, the more they would enjoy being at school. Although positive relations were expected between time spent in both free play and guided play and children's affective readiness, neither was significantly related to children's school liking. It is difficult to understand why there would not be a significant relation between time spent playing and school liking. Perhaps this null effect reflects a measurement issue. That is, in the present study, only teachers' reports of children's school liking were obtained. However, teachers may have incomplete understanding of the extent to which young children enjoy school. Thus, using children's reports of school liking may have resulted in stronger effects. It is also possible that time spent in free and guided play would have been related to affective readiness domains that were not directly measured in the current study. For instance, prior research has linked the child-centered approach with children's compliance, school engagement, and motivation (Stipek et al., 1998).

Thus, future research examining the effects of free and guided play on young children's school readiness should also consider a broader range of measures of affective readiness.

Social readiness. Both free play and guided play were expected to positively predict social readiness. In recent research comparing free play and guided play, free play has been associated with behaviors that are related to positive social development. For example, Goble's research showed that during free play, compared to guided play, children engaged in more peer interactions overall (i.e., higher quantity) and these peer interactions were more complex (e.g., conversation, turn-taking) than the peer interactions that occurred in guided play (e.g., parallel play; Goble, Dissertation Study 1). Furthermore, Goble (Dissertation Study 1) showed that children engaged in higher levels of dramatic play during free play, compared to guided play. Because higher complexity peer play interactions and dramatic play have been consistently linked to social competence, we would expect that free play also would be associated with social competence (Connolly & Doyle, 1984; Lillard et al., 2013 for a full review). Yet, this was not the case. There was, in fact, a negative effect of free play on preschoolers' social readiness at the end of preschool.

One possible explanation for the negative relation between free play and social readiness could be that children's interactions with peers during free play were negative or conflictual. Children's interactions with peers during play in preschool represent the first opportunity that many children have to develop peer interaction skills, such as cooperation and conflict-resolution skills. Because teachers were not present during free play, any negative or conflictual peer interactions that arose were unsupervised. Thus, children may not have had the necessary tools or assistance to help them resolve negative

or conflictual peer interactions. This might explain why a negative relation with social readiness was obtained in the present study. Indeed, longitudinal research consistently links poor peer interactions with negative social development (Denham & Holt, 1993; De Rosier, Kupersmidt, & Patterson, 1994). Detailed observational studies of the quality of children's peer interactions during unsupervised free play would shed light on this issue.

Time spent in guided play in the current study was not associated with social readiness. Though contrary to the hypothesis, this may not be surprising. Just as the research conducted by Goble (Dissertation Study 1) demonstrated that free play promoted the types of experiences with peers that are thought to be related to social skill development, this research also suggested that guided play did not effectively promote the types of experiences with peers that have been related to social skill development. Empirical support for the hypothesized relation between guided play and social readiness came from play-based interventions in which teachers were trained on guided play using the tenants of Vygotsky's theory (Barnett et al., 2008; Bodrova & Leong, 2009; Diamond et al., 2007). It is unclear how exactly teachers are guiding play in naturalistic settings; however, teachers who are not involved in play-based interventions appear not to be involved in play in ways that promotes social readiness as shown in the present study. Research examining teacher behaviors in much more detail within naturalistic settings would help shed light on the guided play strategies utilized by teachers and may provide insights into why they are or are not effective.

Direct Instruction Approach

Previous research comparing instructional approaches and their relations to children's learning and development consistently shows positive relations between direct

instruction and academic skill development (e.g., Marcon 1993; 1999; 2002). Thus, I expected to find that time spent in direct instruction would be positively related to children's academic readiness. However, this hypothesis was not supported. There are several potential explanations for why direct instruction and academic readiness were not related in the present study. First, it is possible that teachers academic instruction was not effective in these classrooms. The majority of the present sample were low-SES, ethnic minority children who tend to enter Head Start classrooms with more behavior problems than their more affluent peers (Huaging Qi & Kaiser, 2003; U.S. Department of Health and Human Services, 2003). Behavior problems can be disruptive to the classroom environment and impede learning, especially during direct instruction activities (Rimm-Kaufman, Pianta, & Cox, 2000). There were no details in the current research regarding the effectiveness of teacher's instruction during small and large group activities but it is possible that children's behavior problems interfered with direct instruction activities. Studies examining the effectiveness of Head Start teachers' instruction during small and large group activities would also be useful to learn about how direct instruction relates to children's academic readiness for children in Head Start.

Second, it is also possible that sample characteristics unique to this study may be important moderators in the relations between direct instruction and academic readiness. For example, the majority of participating children were of Mexican or Mexican American heritage and many spoke Spanish (often with Spanish as the primary language). Thus, children's preferred language (i.e., Spanish or English) could be a potentially important moderator of the relation between time spent in direct instruction and academic skill development. Recent research has shown that Spanish-speaking

children make larger academic gains over the course of preschool when instruction is provided in Spanish (Burchinal, Field, López, Howes, & Pianta, 2012). Although some teachers spoke Spanish or had teaching assistants who spoke Spanish, instruction was largely provided in English for the current sample. Thus, the lack of findings for academic achievement in the current study may be partly due to the fact that the majority of children were Spanish-speaking in an English-based instructional context.

Interestingly, in the present study, direct instruction was positively related to social development. Although the relation between direct instruction and social readiness was not expected, there are reasonable explanations for why this link exists in the current study. Similar to the argument for why free play may have been negatively related to social skill development, perhaps time spent in direct instruction meant less time spent in potentially conflictual or counterproductive unsupervised peer interactions. It is also likely that during small and large group direct instruction, if a peer conflict occurred, teachers addressed it quickly to minimize interruption of the instructional activities. In peer interventions during direct instruction, teachers may facilitate children's conflict resolution and problem solving by encouraging skills such as patience and understanding, which may then contribute to children's social skill development. Observational studies examining teacher management of peer interactions during direct instruction activities would make an important contribution in this area.

Another potential reason for this link between direct instruction and social readiness may be the focus of instructional content. Head Start has stated goals that focus on the development on the "whole" child including the development of social skills in addition to academic skills (U.S. Department of Health and Human Services, 2010).

Accordingly, it is possible that Head Start teachers may focus some of their instruction during small and large groups on building social skills. Future research examining the instructional content Head Start teachers use during direct instruction activities would be useful to learn about how direct instruction relates to children's social skill development.

Strengths and Limitations

The current study expanded upon existing research in a number of important ways. First, the instructional approaches were measured using observational data assessing children's actual time spent in free play, guided play, and direct instruction. This is important because, even within a preschool classroom, there is variability among children in the extent to which they experience free play, guided play, and direct instruction (Goble, Dissertation Study 1). In previous research, classrooms were selected (or assigned classrooms in experimental studies) based on the school, classroom, or teachers' preferred educational approach; however, in the current study, the observational methods used allowed for the first empirical investigation comparing instructional approaches by using children's actual time spent in free play, guided play, and direct instruction. Additionally, because of the detailed information about the time each child spent in each instructional approach, these approaches could be examined within children in mixed-method classrooms rather than across children in different classrooms (i.e., comparing child-centered and direct instruction classrooms). Using this strategy, the current research allows for the comparison of instructional approaches without other methodological confounds that occur in cross-class comparisons such as mismatched schools, classrooms, and teachers.

The current study further extended previous research by separately examining the child-centered contexts of free play and guided play. Whereas previous research comparing direct instruction and the child-centered approach has grouped these contexts as "play", the results from the current study suggest that time spent in free play and guided play differentially relate to children social readiness. Accordingly, future research comparing the child-centered and direct instruction approaches should consider these two play contexts separately.

Another extension of the prior research is the use of children from a different ethnic group than those most often studied. The participants in this study were Head Start children who were mostly Mexican or Mexican-American and came from lower socioeconomic status families. Low-income, Mexican/Mexican-American children are a large and quickly growing population in the U.S., underscoring the importance of understanding the experiences of these children in early education programs, such as Head Start. Although examining school readiness for high-risk populations is an important strength of the current study, one concern for the interpretation of the present results is that the sample from which the results of this study were drawn may not be representative of the larger population, thus potentially limiting the generalizability of the results. Furthermore, the type of program that was assessed was different than what has been typically used, and the Head Start programs investigated here may use the child-centered and direct instruction approaches differently than other types of programs. For example, a study of children in Head Start showed that children spent the majority of time in play (less time in direct instruction; Goble, Dissertation Study 1); whereas a study of children in state-funded prekindergarten programs showed that children spent the

majority of time in direct instruction (less time in play; Chien et al., 2010). Furthermore, as mentioned, it is also possible that sample characteristics, such as children's preferred language, may be important moderators in the relations between instructional approach and school readiness. Accordingly, future research should replicate the current study in a less homogenous sample as well as consider potential moderators of the relations between instructional approach and school readiness for Head Start children.

Another limitation of the current study is the lack of detail regarding teacher behaviors during guided play and direct instruction. Regarding guided play, the hypotheses of the current study were based on previous intervention research and the well-entrenched idea, derived from Vygotsky's theory, that teachers guide play in ways that promote learning and development (Barnett et al., 2008; Bodrova & Leong, 2009; Diamond et al., 2007; Vygotsky, 1978). It is possible, however, that teachers in the current study, although present and interacting with children during guided play, may not have been actually *guiding* play. An important first step for understanding guided play in naturalistic settings would be a descriptive study that documents the various strategies teachers employ to promote learning during play. More information about teacher behaviors during direct instruction in Head Start classrooms would also be helpful in understanding the surprising lack of relation between direct instruction and academic skills and the positive relation between direct instruction and social skills. For example, it would be interesting to know more about the content of Head Start teacher's instruction activities; do these teachers focus more on academic or social skills or is it a mix of the two? It would also be interesting to observe how teachers manage peer conflict during direct instruction activities. Overall, research is needed to examine the relations between

specific teaching strategies during guided play and direct instruction and various school readiness domains.

A major strength of the current study is the observational data used to assess children's actual time spent in various instructional contexts. However, due to the demanding data collection required, data were only collected from six Head Start classrooms per year, for 3 years. Thus, a limitation to the study was the low number of units at the classroom level (i.e., 18 teachers/classrooms), which precluded the use of multilevel analyses to examine the goals of this study (Bell, Ferron, & Kromrey, 2008). There are likely interesting patterns of variability within and across teachers/classrooms that could be explored with larger samples. For example, guided play may be more or less effective depending on any number of teacher level characteristics such as teaching philosophies or years of experience. Accordingly, this research should be replicated with a larger sample of classrooms that would allow for the examination of variability within and across teacher/classrooms in the relations between instructional approach and school readiness outcomes.

Finally, although the current study used multiple measures of academic, affective, and social readiness including both teacher reports and direct child assessment, future research could extend and modify the measures to improve understanding of how instructional approaches relate to school readiness. One approach would be to expand some of the measures to include direct child assessments or multiple reporters. The inclusion of only a single reporter allows for potential biases. For example, it is possible that teachers who spent more time in direct instruction activities believed that their students were better socially prepared and thus rated them higher on measures of social

readiness. In the current study, only academic readiness included measures from multiple reporters (i.e., teacher report and direct child assessment). To reduce potential biases in future research, affective and social readiness measures should also include measures from multiple reporters. Future research should also include initial measures of children's readiness skills in order to assess the degree to which time spent in various instructional contexts affect the development of school readiness skills over time.

Implications for Policy and Practice

Supported by research showing that school readiness has lasting implications for American children's educational and lifelong success, policy makers are calling for "high-quality" early education for all children (Bruner, Floyd, & Copeman, 2005; Duncan et al., 2007; Le, Kirby, Barney, Setodji, & Gershwin, 2006; Mashburn & Pianta, 2006). In the U.S., early learning standards are now in place to improve the quality of preschool programs and improve children's school readiness. These standards for children define *what* specific behaviors and knowledge children should master by the time they enter kindergarten, however, there are no guidelines for *how* or through which educational approach those standards might best be implemented.

The specific behaviors and knowledge that children need to master can be taught in many different ways. The majority of early education programs today use a mix of child-centered and direct instruction approaches (Stipek & Byler, 2004). Aside from the current study, however, research is lacking that examines the relations between these approaches within mixed-method classrooms. It has been widely believed that the child-centered approach is best suited for targeting social skills and direct instruction is best suited for targeting academic skills. Results of the current study challenge popularly held

beliefs about these approaches. For instance, the results of the present study suggested that direct instruction is an important context for improving children's social development. These unexpected findings highlight the importance of making evidence-based decisions regarding the use of the child-centered and direct instruction approaches in early education settings. More research is needed to replicate the results of the current study in mixed-method classrooms; however, it may be time for policymakers to consider the educational approach or *how* children learn when developing early education standards.

With regard to implications for practitioners, the current study provided important information about educational approaches within mixed-method classrooms. First, children's social development was positively related to time spent in direct instruction activities. This may be a finding that is unique to the characteristics of the current sample; however, Head Start teachers should take note of this relation. Given that Head Start children tend to display a higher than average amount of behavior problems, it is important to know that time spent in direct instruction seems to be helpful for these children. This finding also suggests direct instruction may not only be an effective approach for teaching academic content but also for teaching social skills. It may be the case that Head Start teachers in the current study were directly teaching social skills during small and large group activities and that this type of directed social skill instruction was effective for children in this sample. There has been some debate regarding the use of direct instruction for social skills, but the results of the current study suggest that direct instruction may be a good context through which teachers can foster social skills.

Despite the widely held belief that teachers are guiding children's play in ways that promote learning, the current study illustrated that guided play without teacher training may not be as effective as the academic and education communities believe. According to Vygotsky's theory, guided play should be a productive context in which teachers draw attention to key concepts and encourage exploration and discovery to promote learning (Vygotsky, 1978; Wood, 2009). Given the findings of current study and previous research, teachers may not be engaging in guided play in the most effective ways. In fact, how educators interpret and implement the idea of guided play may vary substantially (Macron, 1999; Moyles et al., 2002; Stipek, 1991). It is likely that some teachers do indeed take a Vygotskian perspective to guiding children's play by scaffolding children's learning during co-play interactions. Yet, other teachers may view guided play as a form of "enriched free play" in which teachers oversee children's play but do not expand on children's observations or ask questions to push children's thinking. Still, others may mix play and direct instructional practices. Because there is likely variability in how teachers view and utilize guided play, there is also likely variability in how guided play affects children's learning. Results of play-based interventions in which teachers are trained on how to effectively guide play using the tenants of Vygotsky's theory, however, show that teacher training and implementation of that specific type of guided play has positive implications for children's learning. Accordingly, the results of the current study suggest that teachers should be more conscientious of their role during play with children. Ideally, teachers should be trained on how to appropriately guide play using the tenants of Vygotsky's theory, a method with proven effectiveness (Barnett et al., 2008).

Conclusion

The major goal of the current study was to extend previous research comparing direct instruction and child-centered approaches by assessing the relations between these instructional approaches and children's school readiness skills within mixed-method Head Start classrooms. Specifically, the study examined relations between time children spent in three instructional contexts during the fall (i.e., free play, guided play, and direct instruction) and three domains of school readiness in the spring (i.e., academic, affective, and social). Although the hypotheses were not supported, the results of the current study suggest that certain educational approaches may be more beneficial than others when targeting specific skills in mixed-method classrooms. Results revealed that time spent in free play was negatively related to social readiness and time spent in direct instruction was positively related to social readiness. There are several potential explanations for the findings of the current research; however, more research is needed to make firm conclusions about the mechanisms driving the results. Additional research is also needed to inform policy and practice regarding the use of the child-centered and direct instruction approaches within mixed-method classrooms. At minimum, the current research suggests that teachers should be trained on how to effectively guide children's play in ways that promote learning and development.

Table 1			
Correlations between Subscales within Scales			
		1	2
Child Behavior Scale (CBS)			
1	Asocial Behavior	-	
2	Exclusion by Peers	.33***	-
	Prosocial Behavior	-.33***	-.43***
Penn Interactive Peer Play (PIPPS)			
1	Play Interaction	-	
2	Play Disruption	-.41***	-
	Play Disconnection	-.43***	.67***
Teacher Rating Scale of School Adjustment (TRSSA)			
1	School Liking	-	
2	School Avoidance	-.55***	-
Woocock-Johnson Tests of Achievement (WJ-III)			
1	Word Identification	-	
2	Passage Comprehension	.03	-
	Applied Problems	.38***	.33***
Note . Degrees of freedom for correlations ranged from 249-261. *** $p \leq .001$			

Table 2

Descriptive Statistics for Time Spent in Each Instructional Context and School Readiness Outcomes

		N	*M*	*SD*	Min	Max	Skew	Kurtosis
Proportion of Time Spent								
	Free Play	283	0.28	0.11	0.04	0.57	0.47	-0.27
	Guided Play	283	0.33	0.10	0.11	0.61	0.21	-0.20
	Direct Instruction	283	0.39	0.12	0.08	0.69	0.30	-0.25
Academic Readiness								
	WJ-III Composite (rescaled)	250	3.71	0.19	2.84	4.17	-0.88	1.71
	TDP Reading and Writing Subscale	259	2.58	0.67	1.11	4.00	-0.03	-0.68
	TDP Logic and Numbers Subscale	261	3.09	0.63	1.30	4.00	-0.55	-0.34
Affective Readiness								
	TRSSA Composite	259	2.59	0.19	1.80	2.70	-2.00	3.40
Social Readiness								
	CBS Composite	262	2.58	0.31	1.57	3.00	-0.85	0.40
	PIPPS Composite	262	2.48	0.42	1.42	3.24	-0.40	-0.56
	TDP Social Development Subscale	262	3.13	0.67	1.17	4.00	-0.41	-0.44

Note . WJ-III = Woodcock Johnson Tests of Achievement, TDP = Teacher Developmental Profile, TRSSA = Teacher Rating Scale of School Adjustment, CBS = Child Behavior Scales, PIPPS = Penn Interactive Peer Play Scales. Valid N (listwise) for School Readiness Outcomes = 243.

Table 3

Means and Standard Deviations of Outcome Variables by Child Gender

	Girls			Boys		
	N	*M*	*SD*	N	*M*	*SD*
Academic Readiness						
WJ-III Composite	119	3.75 $_{a}$	0.17	131	3.68 $_{a}$	0.21
TDP Reading and Writing Subscale	126	2.77 $_{b}$	0.64	133	2.39 $_{b}$	0.65
TDP Logic and Numbers Subscale	125	3.20 $_{c}$	0.60	136	2.99 $_{c}$	0.64
Affective Readiness						
TRSSA Composite	125	2.61 $_{d}$	0.16	134	2.56 $_{d}$	0.22
Social Readiness						
CBS Composite	126	2.66 $_{e}$	0.28	136	2.49 $_{e}$	0.31
PIPPS Composite	126	2.62 $_{f}$	0.36	136	2.35 $_{f}$	0.42
TDP Social Development Subscale	126	3.32 $_{g}$	0.58	136	2.96 $_{g}$	0.69

Note . WJ-III = Woodcock Johnson Tests of Achievement, TDP = Teacher Developmental Profile, TRSSA = Teacher Rating Scale of School Adjustment, CBS = Child Behavior Scales, PIPPS = Penn Interactive Peer Play Scales. Items with the same subscript indicate a significant difference between girls and boys at $p \leq .05$. *df* for *t* -tests ranged from 248-281.

Table 4

Correlations among Outcome Composites and Subscales

		1		2		3		4		5		6		7
Academic Readiness														
1	WJ-III Composite	-												
2	TDP Reading and Writing Subscale	0.37	***	-										
3	TDP Logic and Numbers Subscale	0.46	***	0.77	***									
Affective Readiness														
4	TRSSA Composite	-0.09		0.14	*	0.06		-						
Social Readiness														
5	CBS Composite	0.09		0.13	*	0.16	**	0.44	***	-				
6	PIPPS Composite	0.42	***	0.51	***	0.58	***	0.81	***	0.44	***	-		
7	TDP Social Development Subscale	0.40	***	0.43	***	0.57	***	0.72	***	0.80	***	0.39	***	-

Note. WJ-III = Woodcock Johnson Tests of Achievement, TDP = Teacher Developmental Profile, TRSSA = Teacher Rating Scale of School Adjustment, CBS = Child Behavior Scales, PIPPS = Penn Interactive Peer Play Scales. Degrees of freedom for correlations ranged from 248-262. * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$

Table 5

Correlations between Covariates, Predictors, and Outcomes

		Free Play		Guided Play		Direct Instruction		Child Age		Child PPVT		Enjoys School		Socially Competent	
Academic Readiness															
1	WJ-III Composite	0.09		0.08		-0.15	*	0.20	**	0.54	***	0.20	**	0.23	***
2	TDP Reading and Writing Subscale	-0.08		-0.06		0.12	*	0.38	***	0.23	***	0.27	***	0.31	***
3	TDP Logic and Numbers Subscale	0.02		-0.09		0.06		0.31	***	0.39	***	0.28	***	0.37	***
Affective Readiness															
4	TRSSA Composite	-0.13	*	-0.06		0.16	**	0.04		-0.17	**	0.14	*	0.07	
Social Readiness															
5	CBS Composite	-0.15	*	-0.07		0.20	***	-0.01		-0.02		0.41	***	0.40	***
6	PIPPS Composite	-0.21	***	-0.06		0.24	***	-0.01		-0.01		0.39	***	0.34	***
7	TDP Social Development Subscale	-0.20	***	-0.04		0.21	***	0.13	*	0.02		0.34	***	0.35	***

Note . WJ-III = Woodcock Johnson Tests of Achievement, TDP = Teacher Developmental Profile, TRSSA = Teacher Rating Scale of School Adjustment, CBS = Child Behavior Scales, PIPPS = Penn Interactive Peer Play Scales. Degrees of freedom for correlations ranged from 248-262. * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$

Table 6

Factor Loadings and R-squares for Academic and Social Readiness CFA

		R^2	*B*	β
Academic Readiness				
	WJ-III Composite	0.22	1.00	0.47
	TDP Reading and Writing Subscale	0.73	6.36	0.86
	TDP Logic and Numbers Subscale	0.83	6.35	0.91
Social Readiness				
	CBS Composite[a]	0.54	1.00	0.73
	PIPPS Composite[a]	0.66	1.51	0.81
	TDP Social Development Subscale	0.97	2.94	0.99

Note . WJ-III = Woodcock Johnson Tests of Achievement, TDP = Teacher Developmental Profile, TRSSA = Teacher Rating Scale of School Adjustment, CBS = Child Behavior Scales, PIPPS = Penn Interactive Peer Play Scales. All estimates are significant at $p < .001$. [a] Residual covariance estimated to improve model fit (*cov* = .03, *r* = .55; $p \leq .001$). $\chi 2(7) = 18.13$, $p \leq .05$, CFI = .99, RMSEA = .08, SRMR = .04.

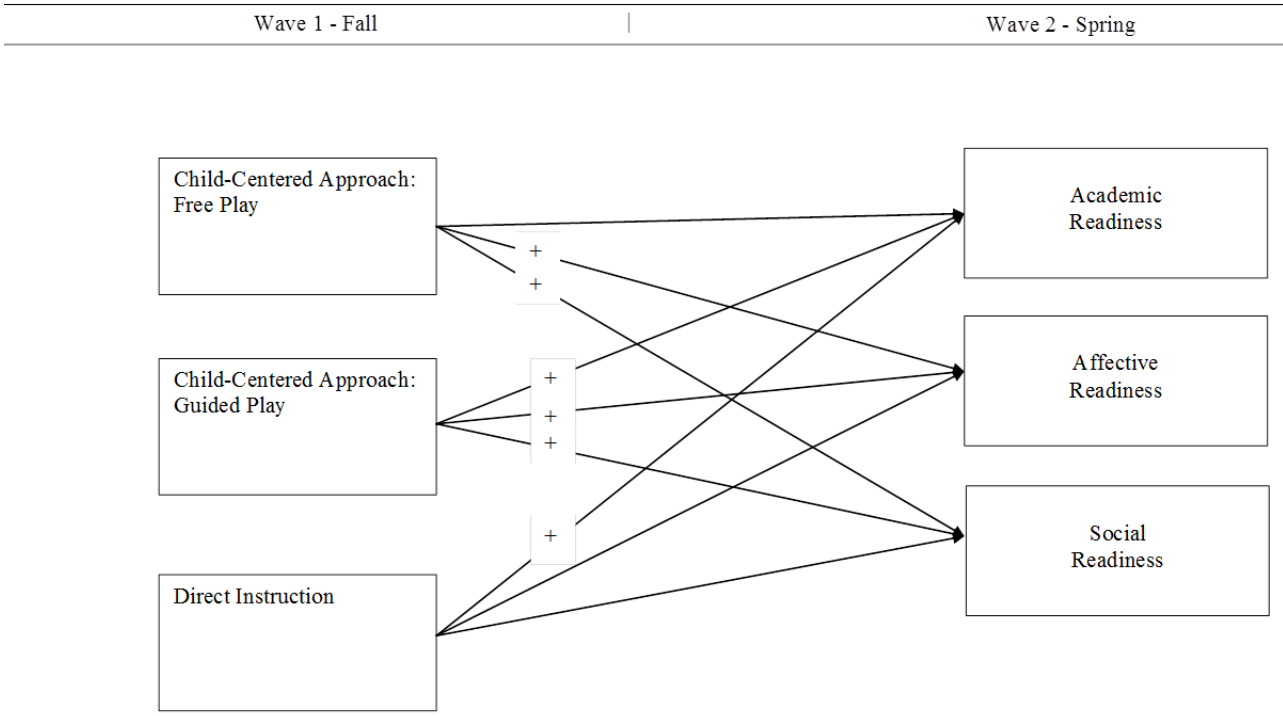

Figure 1. Conceptual Model of Hypothesized Relations

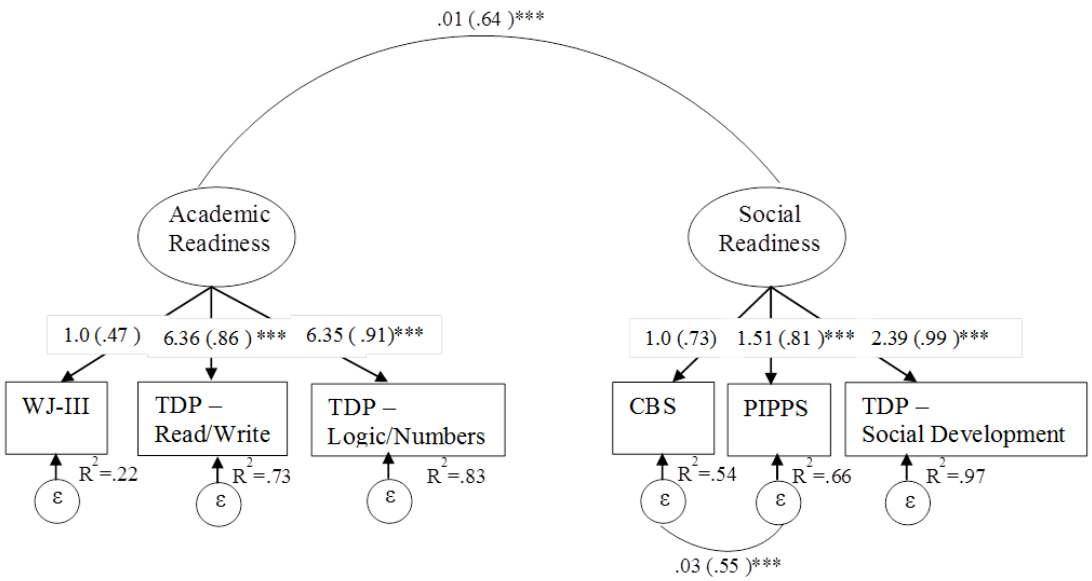

Figure 2. Measurement Model for Academic and Social Readiness.

Note. Unstandardized and standardized (in parentheses) beta estimates, and *p*-values for unstandardized betas are reported. R-squares (proportion of variance accounted for in each variable by its latent factor) are reported for all indicators. WJ-III = Woodcock-Johnson Tests of Achievement composite, TDP = Teacher Developmental Profile, CBS = Child Behavior Scales composite, PIPPS = Penn Interactive Peer Play Scales composite. $\chi^2(7) = 18.13$, $p = .01$, CFI = .99, RMSEA = .08, SRMR = .04. * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$.

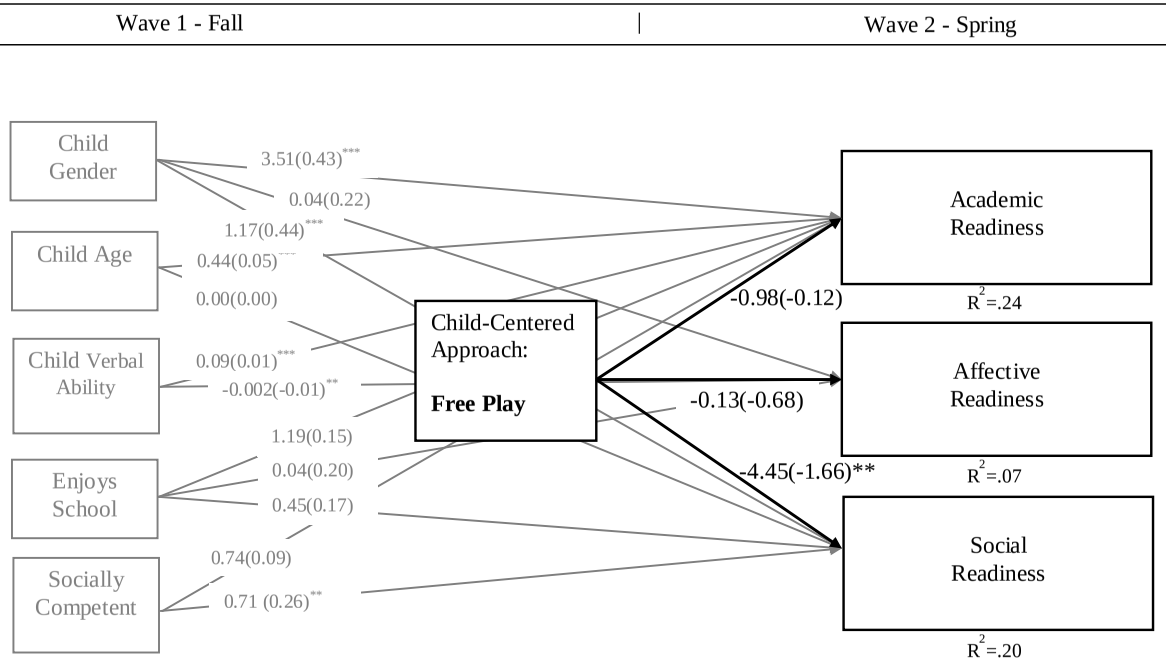

Figure 3. Longitudinal Model of Free Play and School Readiness.

Note. Unstandardized and standardized (in parentheses) beta estimates, and *p*-values for unstandardized betas are reported. R-squares (proportion of variance accounted for in each variable by its predictors) are reported for endogenous variables. School readiness variables were regressed upon child gender (male=1, female=2), age, initial verbal ability, and observer ratings for enjoys school and socially competent. Ethnicity (Hispanic, non-Hispanic) was included as an auxiliary variable. $\chi^2(3) = 3.29$, $p = .35$, CFI = 1.0, RMSEA = .02, SRMR = .02. * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$.

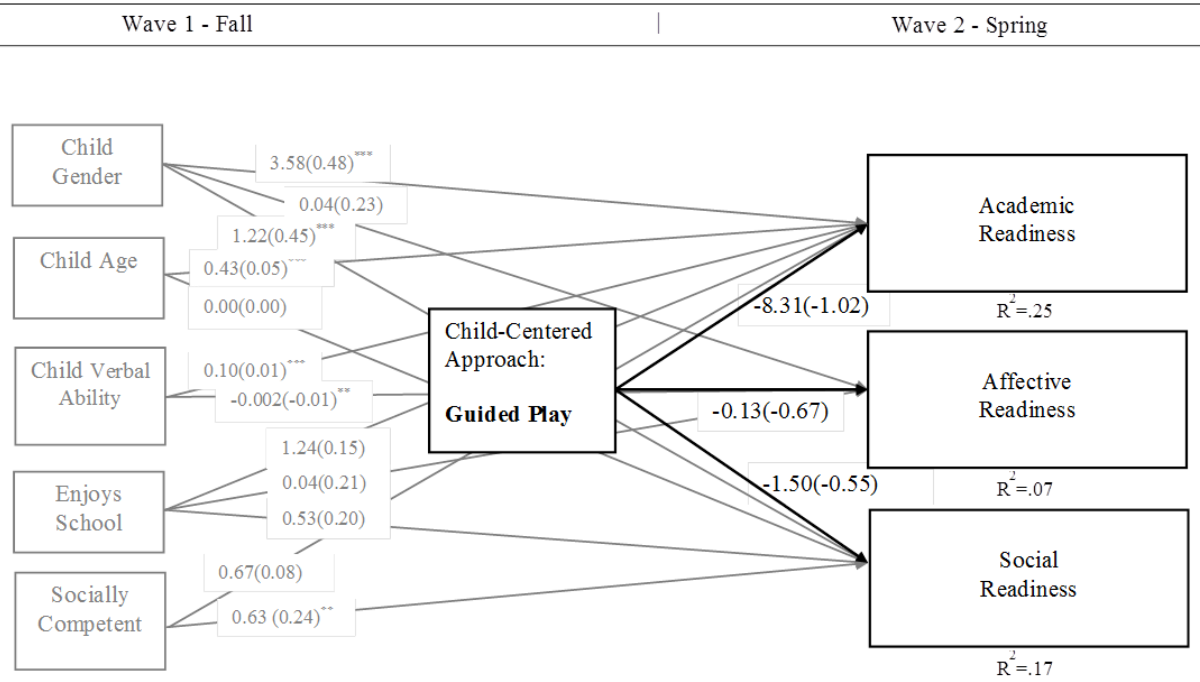

Figure 4. Longitudinal Model of Guided Play and School Readiness.

Note. Unstandardized and standardized (in parentheses) beta estimates, and *p*-values for unstandardized betas are reported. R-squares (proportion of variance accounted for in each variable by its predictors) are reported for endogenous variables. School readiness variables were regressed upon child gender (male=1, female=2), age, initial verbal ability, and observer ratings for enjoys school and socially competent. Ethnicity (Hispanic, non-Hispanic) was included as an auxiliary variable. $\chi^2(3) = 3.62$, $p = .31$, CFI = .98, RMSEA = .03, SRMR = .02. * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$.

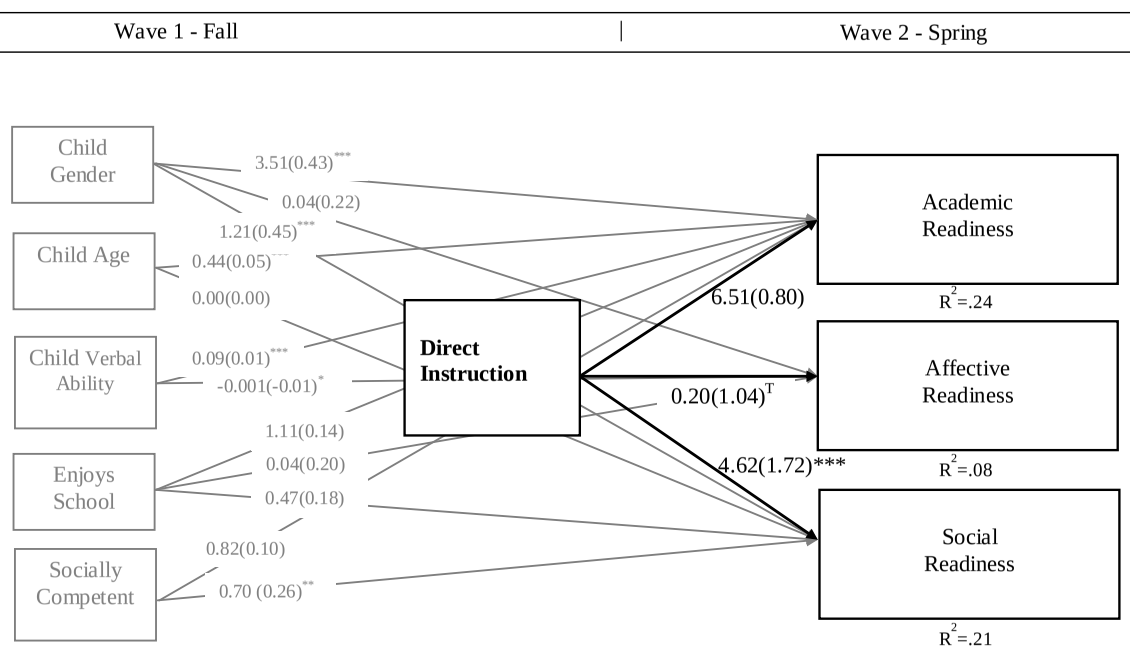

Figure 5. Longitudinal Model of Direct Instruction and School Readiness.

Note. Unstandardized and standardized (in parentheses) beta estimates, and *p*-values for unstandardized betas are reported. R-squares (proportion of variance accounted for in each variable by its predictors) are reported for endogenous variables. School readiness variables were regressed upon child gender (male=1, female=2), age, initial verbal ability, and observer ratings for enjoys school and socially competent. Ethnicity (Hispanic, non-Hispanic) was included as an auxiliary variable. $\chi^2(3) = 2.41$, $p = .49$, CFI = 1.00, RMSEA = .00, SRMR = .01. ^{T} $p \leq .10$, * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$.

GENERAL DISCUSSION

The goal of the two studies in this dissertation was to improve early education instruction for at-risk children by providing empirically-based suggestions for early childhood policy and practice regarding the use of the child-centered and the direct instruction approaches. Although the majority of research on the child-centered approach has grouped free play and guided play together as "play", with the assumption that these play contexts share some similarities in what they provide for children, they are actually quite different. The child-centered contexts of free play and guided play proved to be significantly different in the types, quality, and diversity of activity engagement and peer interactions that children experience. The guided play context is believed to be a productive context in which children's experiences are facilitated by teachers in a way the promoted learning (e.g., Vygotsky, 1978). Contrary to popular belief, children in the current study were more likely during free play than guided play to engage in the types, quality, and diversity of experiences with activities and peers thought to promote learning and development.

In further contradiction to the idea that guided play is a productive context for children's learning, analyses examining the relations between time spent in guided play in the fall and children's school readiness in the spring showed that time spent in guided play was not a significant predictor of children's school readiness. Interestingly, time spent in direct instruction was positively related and time spent in free play was negatively related to children's social readiness skills. The two studies illustrate that that free play and guided play are distinct contexts within the child-centered approach and

that time spent in the child-centered context, free play, and in direct instruction activities uniquely relate to children's social readiness in mixed-method Head Start classrooms.

There are several important implications of the current research. First, the studies of this dissertation demonstrate that free play and guided play are separate contexts and should be considered separately in future research. The descriptive data of Study 1 showed that there are far more differences in the types, quality, and diversity of children's experiences during free play and guided play than there were similarities. Furthermore, Study 2 showed that free play and guided play relate to children's school readiness at the end of preschool differently. Although guided play was not a significant predictor, free play was a negative predictor of children's social readiness.

Second, despite the widely held belief that guided play is the most superior context for children's learning in early education settings, the results of the current study suggest that, without teacher training, guided play is not an effective context for children's learning and development. This discovery is critical for policy and practice. Given these findings, policymakers should require that pre-service and professional development programs for early childhood educators have a guided play component. Ideally teachers would be trained using the tenants of Vygotsky's theory; however, at the very least teachers should be given literature about guided play and the tools to train themselves.

Finally, the results linking direct instruction and social readiness suggest that direct instruction may be a particularly beneficial context for Head Start children, who tend to enter preschool with more behavior problems than their more affluent peers (Huaging Qi & Kaiser, 2003; U.S. Department of Health and Human Services, 2003).

There has been some resistance to the downward shift of direct instruction in early education programs (Stipek, 2006). Much of this resistance stems from the belief that in direct instruction academic skill development is favored over social skill development. The findings of the current study suggest, however, that children, at least those who are at-risk for academic failure, are also benefitting socially from time spent in direct instruction activities.

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