Building blocks to growth: an examination of block building's impact on social and emotional development

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Building Blocks to Growth:
An Examination of Block Building’s Impact on Social and Emotional Development

By

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Abstract

This Integrative Master’s Project explores the role that independent and group block building play in early childhood development, and specifically examines the impact of early childhood block play on social and emotional development. It includes a review of the literature which highlights historical ideas concerning play and social-emotional development; reviews the history of block building curricula and the role that block building can play in social-emotional development; and discusses current neuroscientific research on human interaction, emotional development, and the role of play in social-emotional development. It also includes an observational study. Nine children were observed and video recorded participating in independent and group block building sessions at several intervals from October 2011 to March 2012. Data collected from independent building sessions was used to track children’s development over time. Data collected from group building sessions was used to document the ways in which individual developmental abilities impact social and emotional experience within a group. Video recordings of six of the children (two small groups) were used to create an edited film with commentary that highlights the most relevant findings. Findings suggest that young children should be introduced to block play, and that independent and group block building be regarded as an integral part of early childhood education.

Key words: block building, block play, play, social-emotional development, early childhood development, interpersonal, neuroscience and play
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Rationale

This Integrative Master’s Project is an expansion of work that I began in my classroom of four year-olds in the spring of 2011. The initial idea arose from the children’s demonstrated interest in building and from a desire to have them build together as a group. In thinking about a group construction project, my head teacher and I were faced with the challenge of trying to design an activity that would help each child in our class to feel included, validated, confident, and competent. We were concerned that one of the children in the class—a child with social, emotional, and behavioral challenges—would not be able to participate successfully in a group block building project that involved the entire class working on a construction altogether and at the same time. After considering this particular problem and the special needs of this child, I conceived of the idea for a “progressive” group construction project: I built a very basic block structure and each of the nine children in the class were allotted five minutes in which to add to the construction. The children worked consecutively; each child built an addition to the construction of the children who had gone before. The children were told that they could build anything they liked, but that they were not to knock over or remove any blocks that were in place when they encountered the structure. In this way, each child was given the opportunity to participate in the project in a way that allowed for social and emotional success and validation, and each contributed in a positive and unique way to a group construction.

I videotaped each child participating in this project. While reviewing my footage, it became apparent to me that this type of block building project seemed to have a positive impact on each child’s social and emotional well-being.
The Integrative Master’s Project presented here was an opportunity for me to expand the project in my classroom during the 2011-2012 school year, and to explore further and more deeply the impact of this kind of block building on children’s social and emotional development.

Ultimately, my study suggests that block building supports physical, cognitive, linguistic, and social and emotional development, and specifically examines the ways in which individual and group block building projects can support social and emotional development in the early childhood classroom.
Methodology

In order to investigate the ways in which block building supports development across modalities and, specifically, how group block building can support social and emotional development, I observed and video recorded nine four year-old children in my classroom building on their own and in small groups at several intervals over the course of the 2011-2012 school year. At the beginning of the study, I assigned each child to a small group comprised of three children; the small groups remained constant over time and included typically developing children as well as children who have special needs. During the building sessions, each child in a group was given five minutes in which to build independently, and then each small group of three was given five minutes to build together. This method allowed me to observe and document each child’s strengths, challenges, and individual development over time, and to examine the ways in which individual capabilities affected each child’s participation and social and emotional interactions in group block building.

Video recordings of six of the children (two of the small groups) have served as the primary data for my study. One group’s activities were recorded in late October 2011, early January 2012, and early March 2012; the others’ in late November 2011, early January 2012, and mid-February 2012. These video recordings were transcribed, the transcripts were annotated, and the data, observations, and corresponding notes were sorted into grids. These grids were organized chronologically and according to developmental modality (for example, data and/or observations that highlighted examples of physical development were sorted into the “PHYSICAL” observation grid). The organized data and observations were then analyzed; these analyses have informed my
findings. I have used scenes from some of the video-recorded sessions to create an edited film that highlights the most relevant of my observations and findings.

I have also conducted a review of the relevant literature on play, block building, and social and emotional development in the preschool classroom in order to enhance my own understanding and the analysis of my observations.
Review of the Literature

Developmental theorists and educators have long valued play as an integral aspect of children’s development. Recently, there has been a resurgence of popular and professional articles that discuss the importance of play and play-based curricula for young children (Spencer, 2011; Stout, 2011). Play-based curricula that incorporates independent and group block building supports early childhood development across modalities, including that which occurs in the social-emotional realm (Brody & Brody, 1996; Brody & Hirsch, 1996; Cuffaro, 1996; Davis, 1997; Hanline, Milton, & Phelps, 2001; Hirsch, 1996; Johnson, 1996; Pratt, 1924; Provenzo & Brett, 1983). The first section of this literature review will highlight the most significant ideas concerning play and its relation to the social-emotional development of children that have shaped the educational landscape over the last century.

The subsequent section will focus on the history of unit blocks and block building curricula and on the role that block building can play in the social-emotional development of young children.

The final section of this review will discuss some of the most recent neuroscientific research on human interaction and emotional development and how this research can enhance our understanding of the role of play and block building in children's social-emotional development.

The Importance of Play for Social-Emotional Development: Historical Developmental Perspectives

Jean Piaget. In the early twentieth century, Jean Piaget’s observations of children’s behavior and thought processes allowed him to create a comprehensive theory of intellectual and cognitive development (Crain, 1992). Central to Piaget’s theory are
four developmental stages—sensori-motor, preoperational thought, concrete operations, and formal operations—and the idea that, within each stage, children develop as a result of their interactions with and integrated understanding of the world around them (Crain, 1992, p. 102-103). According to Crain (1992), Piaget believed that children actively construct understanding and knowledge—“differentiated and comprehensive cognitive structures”—as a result of their interactions and experiences with the external world (p. 103). This construction process and the cognitive structures that children produce within it are dependent upon what Piaget refers to as assimilative learning (wherein one takes information from the environment and adds it to an already existing way of thinking about the world); accommodative learning (wherein one changes one’s way of thinking about the world to accommodate new information); and organization or integration (wherein one organizes or integrates one’s ways of thinking into systems of thought) (Elkin, 1976; Crain, 1992).

Play provides young children with opportunities for assimilative and accommodative learning and integration, and is the main activity through which children construct cognitive structures that extend their social-emotional development. According to Piaget, children in the early pre-operational stages of development are egocentric; they are unable to distinguish their own perspective from that of others (Crain, 1992, p. 114). The two-, three-, or four year old child who seems content to play alone alongside her peers does so because of this pre-operational egocentrism. For the most part, children in the early pre-operational stage use play to explore the world from their private perspectives. Additionally, they begin to construct emotional understanding through what Piaget refers to as “compensatory play,” a kind of fantasy or dramatic play in which they
are able to express and explore personal wishes, desires, and conflicts (as cited in Gushee, 1994). The expression and exploration of feelings and the construction of emotional understanding that occur within play experiences influence the development of the pre-operational child’s sense of self, arguably one of the most important tasks in social-emotional development.

Post-Piagetian thinkers disagree with the idea that young children are entirely egocentric. They assert that, even in infancy, children are beginning to develop an understanding of the connection between other people’s actions and intentions, an understanding that continues to grow and mature throughout early childhood (Lightfoot, Cole, & Cole, 2008). Both Piaget and post-Piagetian theorists agree that interactions with peers and participation in cooperative play allow four- and five year olds—more mature children in Piaget’s later pre-operational stage—the opportunity to develop their understanding of others’ perspectives (Crain, 1992; Lightfoot et al., 2008). According to Piagetian theorist Elkin (1976): “Children learn to play with one another by playing with one another…Operative learning in the social domain is encouraged when small groups of children are allowed to work cooperatively on joint projects” (p. 131). The emergence of cooperation, sympathy, and mutual respect, as well as the growing ability to take another’s point of view, signal the ongoing development of a young child’s “theory of mind:” the ability to attribute mental states to oneself and others and to understand that others have mental states that differ from one’s own. Cooperative play challenges children to cultivate theory of mind and to utilize their growing social-emotional understanding within “real time” social interactions.
Lev Vygotsky. Lev Vygotsky was a Russian-born Marxist and a contemporary of Piaget. His theories concerning child development were influenced largely by his politics and by his education as a psychologist (Crain, 1992). Like Piaget, Vygotsky (1978) believed that children are motivated instinctively to explore their environment. However, unlike Piaget, who asserts that the existence of others and of others’ perspectives serves to challenge and stimulate a child’s private, independent development, Vygotsky posits that children’s development results in large part from their participation in culture, and that learning is inseparable from the social-historical context in which it occurs (Crain, 1992; Vygotsky, 1978). For Vygotsky, much of development is a social matter.

In an attempt to explain and illustrate the impact of social interaction and interdependence on children’s development, Vygotsky (1978) puts forth the theory of the “zone of proximal development,” which he defines as

…the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers. (p. 85)

According to Vygotsky, a child’s actual developmental level—what he or she can do in the present moment—is less important than that child’s potential developmental level, which is illuminated when his or her learning is supported (or scaffolded) by adults or developmentally-advanced peers.

Vygotsky (1978) asserts that the cooperative, imaginative, rule-based play of preschoolers
creates a zone of proximal development for [children]. In play a child always behaves beyond his average age, above his daily behavior; in play it is as though he were a head taller than himself. (p. 102)

Cooperative, imaginative play scaffolds development by providing children with opportunities to perform imaginary tasks and enact pretend roles that are developmentally beyond them in real life. It also provides a social context within which children influence and support each other’s thinking and behavior.

Vygotsky (1978) believes that the imaginative play of preschool aged children arises out of their need to gratify unrealized desires (p. 93). In essence, play is an imaginary situation in which a child’s emotional needs can be explored and addressed. According to Vygotsky (1978), every imaginary situation contains rules of behavior, and cooperative, imaginative play continually demands that children renounce the desire to act spontaneously and instead subordinate themselves to the rules of the collectively agreed-upon game (p. 93, 99). In this way, cooperative, imaginative, rule-based play allows young children to explore their own desires within a rule-governed context; it also compels them to develop the ability to consider the needs, thoughts, and desires of their peers and to cultivate self regulation in the context of social interactions (Vygotsky, 1978, p. 99). According to Vygotsky (1978), the social and emotional lessons learned through this kind of play eventually become the basis of action and morality in the real world (p. 100).

Creating imaginary play scenarios and operating within them also supports cognitive development. According to Vygotsky (1978), imaginative play is “the first manifestation of the child’s emancipation from situational constraints” (p. 99). In other
words, play is both indicative of and a means for the development of abstract thought. Imaginative play demands that children utilize their ability to perceive the meaning behind objects. It requires that they develop a capacity for cognitive distancing in order that they may mentally represent, examine, and manipulate both objects and their meanings. Imaginative play compels children to develop the ability to detach or “sever” meaning from actual objects; to imbue other representational objects (such as toys or blocks) with that meaning; and to use that meaning in their play (Vygotsky, 1978, p. 98-99).

Children at play operate with actions in the same way that they do with objects (Vygotsky, 1978, p. 100). In a pretend play scenario, children must detach meaning from a real action (for example, riding a horse) and represent that meaning with a symbolic action (stomping one’s foot on the ground and galloping) (Vygotsky, 1978, p. 100). Furthermore, according to Vygotsky (1978), “Just as operating with the meaning of things leads to abstract thought, we find that the development of will, the ability to make conscious choices, occurs when the child operates with the meaning of actions” (p. 101). Children who operate with the meaning of actions in imaginative play scenarios develop not only their capacity for abstract thought, but their consciousness and will. Consciousness and will can be thought of as attributes or aspects of the self; it follows that children who participate in imaginative play begin to form a sense of themselves based on their actions and choices. This is not only a cognitive development, but a significant social and emotional one as well.

**Erik Erikson.** Erik Eriksson’s developmental theory—the Eight Stages of Man—is a psychosocial model that defines each period of development in terms of an internal
conflict. Erikson traces human development from the first developmental stage, characterized by the infant’s conflict between Basic Trust versus Mistrust, to the last, which is characterized the older adult’s conflict between Ego Integrity versus Despair (Erikson, 1950; Gushee, 1994, p. 9). According to Erikson (1950), the preschool child is faced with the conflict of Initiative—“the quality of undertaking, planning and ‘attacking’ a task for the sake of being active and on the move”—versus Guilt, which can result from a turning away from his or her parent toward the goals that Initiative makes desirable (p. 255-258).

Erikson (1950) asserts that children moving through the stage of Initiative versus Guilt—like Piaget’s more mature pre-operational children—are becoming socially responsible and attuned learners.

He is eager and able to make things cooperatively, to combine with other children for the purpose of constructing and planning, and he is willing to profit from teachers and to emulate ideal prototypes. (Erikson, 1950, p. 258)

Erikson, like Vygotsky, believes that children’s development is driven by internally motivating forces, but that development also takes place within a social context; it is within this context that they must seek to resolve the conflicts inherent in each stage of their development.

For Erikson (1950), play is one arena in which children are able to explore experience and resolve internal conflicts. It is a symbolic, meaningful expression of inner life, the child’s tool for processing and understanding his or her environment and experiences and for gaining control and mastery over them (Erikson, 1950, p. 211-212). This idea—that play addresses the ego’s need to master various areas of life—is true of
each type and stage of play that Erikson identifies. Autocosmic play—the kinesthetic play of the infant—“begins with and centers on his own body” and consists of explorations and manipulations of the environment (Erikson, 1950, p. 220). Play in the “microsphere” is largely private—akin to the egocentric parallel play of Piaget’s early pre-operational child (Erikson, 1950, p. 221). Play in the “macrosphere” is play that is shared with others; it is the social play of nursery- and preschool aged children (Erikson, 1950, p. 221). According to Erikson (1950), it is this kind of social play that helps children in the Initiative vs. Guilt stage to develop self-control: in order to participate in cooperative play, young children must learn to reconcile their own needs and desires with those of their peers and of the larger group. Like Vygotsky, Erikson believes that this aspect of social play furthers individual development within a social context. Furthermore, it compels children to develop a sense of group and cultural identity and an understanding of socio-cultural values (Erikson, 1950).

The Importance of Block Play for Social-Emotional Development: Educational Perspectives

**Caroline Pratt and the power of “adaptable materials.”** Caroline Pratt, designer of the now-ubiquitous “unit block,” founded the Play School in 1914 in New York City’s West Village. Now known as the City & Country School, Pratt’s Play School was meant to embody the ideals of progressive educator John Dewey (1938), who promoted individuality, freedom of expression and action, and learning from experience (p.19). Progressive educators like Dewey and Pratt sought to create learning environments that fostered children’s creativity and individuality and to provide ample opportunity for educative experience. The name—“the Play School”—“reflects a special

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* Please refer to the Appendix for photographs of a unit block and a unit block set.
interest of its founder, her original inquiry into the educational possibilities of children’s play and its place in the school procedure” (Pratt, 1924, p. vii). For Pratt, “adaptable materials and the play opportunities that such materials afford” are the basis for young children’s educative experience (Pratt, 1924, p. 3; Dewey, 1915, p. 116-118).

Pratt’s unit blocks are an “adaptable material” insofar as they can be selected and manipulated by an individual child or group of children to suit individual or collective purposes. Pratt (1924) observed that a child’s work with blocks often serves the purpose of extending the child’s understanding of his or her environment. Furthermore, children’s block play is an observable, outward manifestation of internal processes.

These [representations with blocks] constitute the overt behavior signs…What this overt behavior shows to the teacher is what is going on in the organism: the changes that are taking place, the growing power, or perhaps a stepping back. It shows a new direction or no direction at all. (Pratt, 1924, p. 4-5)

Unit blocks offer children the opportunity to explore abstract ideas, potentially confusing concepts, and new experiences in concrete and manageable ways. Pratt (1924) also asserts that unit blocks provide children with a concrete way in which to organize emotional experience, an idea similar to that which Erikson (1950) introduces when he asserts that “[c]hildren are apt to say in spatial configurations what they cannot or dare not say” (p. 29). Because they are adaptable, the unit blocks lend themselves to the creation of constructions that can be included in dramatic play scenarios (Cuffaro, as cited in Phelan, 1998, p. 9). According to Pratt (1924), unit blocks allow a child “to work his life out on something” (p. 6).
[The child] is full of motor activity and without materials he becomes a struggling little being working with what he cannot understand, much less manage. It is this sort of confused life which becomes turned in on itself...we recognize the necessity for them to have materials which they can work with, which they can dominate, and feel their power over. (Pratt, 1924, p. 6)

Block play allows children the opportunity to construct and manipulate their emotional realities in order to gain insight into emotional situations and a sense of mastery over emotional experiences.

For Pratt (1924), blocks are a blank slate upon which children can act out and explore emotional experiences and reactions. They are also a unifying material that draws children together and allows them to make connections between themselves and others and themselves and the larger world. Pratt highlights this idea of blocks as social material in a discussion of the City & Country School curriculum. She asserts that her students in the seven-year-old program are able to collaborate on large-scale building projects because of the social learning that earlier block building has afforded them (Pratt, 1924).

According to Pratt (1924), these older children have learned to help themselves to materials, to settle disagreements without arguing, to establish and observe rules and social norms, and to work together with minimal friction and personal freedom (p. 20). Their earlier experiences with block building have enhanced their social interactions and ability to cooperate, and have allowed them to extend their learning out into the larger community. Through this discussion, Pratt provides a concrete example of the ways in which early exposure to block building can enhance children’s social development and community mindedness.
Other educational perspectives. Pratt’s ideas—that block building provides children with the means to express their emotions and with the opportunity to develop social competence—were reviewed by her contemporaries and have been explored subsequently by teachers and other educational practitioners.

Harriet Johnson was a contemporary and colleague of Caroline Pratt; she served as the director of the nursery at the City & Country School from its founding in 1914 until her death in 1934. In 1933, Johnson published “The Art of Block Building,” in which she describes the artistic elements of children’s block structures and illuminates the cognitive, emotional, and social benefits of block building. Like Pratt, Johnson (1996) believes that block play provides children with the means and opportunity to express themselves; she asserts that “[c]hildren speak with blocks” (p. 23). This theory—that blocks serve young children as a vehicle for emotional expression and exploration—has been echoed repeatedly by other educators and researchers (Brody & Hirsch, 1996; Cuffaro, 1996; Davis, 1997; Hirsch, 1996; Hyson, 2004; Provenzo, 1983; Spencer, 2011; Stout, 2011).

Block building also allows children to develop a sense of mastery, a sense of competence, and, ultimately, a sense of self (Brody & Hirsch, 1996; Cuffaro, 1996; Davis, 1997; Hanline, et al., 2001; Provenzo, 1983). Brody and Hirsch (1996) discuss the way in which blocks serve as a “no-fail medium” for the development of children’s positive self-regard: “Whatever the children construct serves as proof of their ability, their dexterity, and, eventually, their thought and imagination” (p. 65). Block structures serve as concrete representations of a child’s abilities, thoughts, and personality; young
children who build with blocks begin to develop a sense of themselves through the construction, examination, and manipulation of the representations that they create.

Cooperative, collaborative block building affords children this same opportunity to acquire a personal sense of mastery and positive sense of self; furthermore, it establishes an arena in which young children develop those skills and abilities necessary for satisfying social interactions. Brody and Hirsch (1996) posit that block building helps young children learn to consider the perspectives of others:

The magic bubble encapsulating the child slowly expands through interaction with others…the loosening of egocentric thought slowly permits beginning social interaction in the use of blocks…It may be as simple as connecting two sets of tracks, but this is the next step in socialization. (p. 61)

This loosening of egocentric thought, combined with increased understanding of others’ thoughts, feelings, and desires, are “the beginnings of empathy” and lead to the development of “true social give-and-take” (Brody & Hirsch, 1996, p. 62-63).

The peer interactions fostered by cooperative block play encourage the growth of social and emotional competence by providing young children with the opportunity to develop and communicate their own thoughts, feelings, and desires, and to practice negotiation and critical thinking in situations that involve conflict or other social, emotional, and cognitive challenges (Brody & Hirsch, 1996; Cuffaro, 1996; Davis, 1997; Hanline et al., 2001).

As children develop their block structures, we also see them developing the ability to plan critically while working with others. Children must listen to others
and be able to verbalize their vision as they negotiate their ideas with their peers in the block area. (Davis, 1997, p. 48)

Social interactions that require communication, negotiation, and critical thinking provide young children with the opportunity to practice these social skills; they also encourage the development of emotion regulation (Hyson, 2004). In a study of preschoolers’ emotional competence and its links to pretend and physical play, Lindsey and Colwell (2001) found that preschool aged children who engage in high levels of interactive pretend play with peers demonstrate greater emotional understanding and awareness (emotional competence) and higher emotion regulation than those children who engage in low levels of pretend play. Cooperative block play often involves or consists of pretend play and always requires peer interaction; it follows that children who engage in interactive, collaborative block building are poised to develop the kinds of skills necessary for emotion regulation and emotional competence.

**Block play and the social-emotional development of children with special needs.** Children with special needs may require physical accommodations or other kinds of support in order to participate in independent and group block play (Klein, Cook, & Richardson-Gibbs, 2001). In addition, they may progress through the stages of block construction more slowly than typically developing peers (Hanline et al., 2001). However, block building can benefit young children with special needs in many of the same ways it does typically developing children.

Young children with language disabilities who have trouble initiating or maintaining verbal communication with their peers often feel socially isolated and disempowered (Koplow, 1997). Blocks encourage and facilitate emotional expression
and social interaction (Brody & Hirsch, 1996; Cuffaro, 1996; Davis, 1997; Hirsch, 1996; Hyson, 2004; Johnson, 1996; Koplow, 1997; Provenzo, 1983; Spencer, 2011; Stout, 2011). They can serve as powerful communication tools, especially for children with language disabilities. Children who experience difficulties with language can use blocks to explore and express emotions and ideas in a nonverbal way. Furthermore, they can participate physically in group block building activities that involve shared materials and play symbols, and can benefit from the sense of belonging and feelings of competence and mastery that this participation engenders (Brody & Hirsch, 1996; Koplow, 1997).

The block building area can serve as a zone of proximal development in which typically developing children scaffold the social-emotional learning and development of their peers with special needs. For example, building with peers who are adept at verbal communication or who possess those language skills necessary for collaboration exposes children with special needs to rich and complex language use, which impacts their own language development, as well as interpersonal understanding and social development (Brody & Hirsch, 1996). Group block building exposes children with special needs to the constructions, communications, and negotiations of their typically developing peers, and thus provides models upon which children with special needs can base their own building, communication, and social-emotional learning.

**The Importance of Play for Social-Emotional Development: Neuroscientific Insight**

The “Decade of the Brain” (1990-2000) saw neuroscience research and writing extend into new areas of the social world (Siegel, 1999, 2012; Cozolino, 2006; Schore, 2003). In this section, I will give a brief overview of the development of interpersonal neurobiology—the study of the ways in which the brain is a social organism—and will
discuss how neuroscience concepts can inform understanding of human interactions. I will draw connections between these concepts and the role that social play and block building have in fostering children’s social-emotional development.

**Interpersonal neurobiology: Social interaction and emotional development.**

The idea that children’s cognitive and social-emotional development is a process that occurs within a social and environmental context as a result of social and environmental interactions is not new: theorists like Piaget, Vygotsky, and Erikson assert as much in their explanations of development (Crain, 1992; Vygotsky, 1978; Erikson, 1950). However, the idea that the physical brain and the neurological processes that occur within it are influenced by experience and that the mind is constructed by the brain’s integration of this experience is a groundbreaking one that has emerged as the result of discoveries in the field of neuroscience.

Daniel Siegel (1999, 2012) and Louis Cozolino (2006) are among the leading thinkers working on explaining the relevance that neuroscience has to understanding human relationships. Taken as a whole, Siegel, Cozolino, and others’ work argues for the existence of a “social brain,” and provides a neuroscientific context for understanding all interpersonal relationships. Cozolino (2006) asserts that it is the human brain’s mutability—its “experience-based plasticity” (p. 7)—that allows it to be “structured and restructured by interactions with our social and natural environments” (p. 81). Siegel (1999) coined the term “interpersonal neurobiology” to refer to the idea that “the mind develops at the interface of neuropsychological processes and interpersonal relationships” (p. 21). Siegel (2012) defines “mind” as consisting of three fundamental aspects: “personal subjective experience, consciousness with a sense of knowing and that which is
known, and a regulatory function that is an emergent, self-organizing process of the extended nervous system and relationships” (p. AI-51). Mind may be thought of not only as lived experience, but also as a by-product of the brain functioning in the world. In other words, the physical brain—it's processes and structures—are shaped by social and environmental experiences; the effect of these changing processes and structures is the development and shaping of the mind.

According to interpersonal neurobiologists, the most fundamental way in which the brain processes social and environmental experience is through emotion. Here, “emotion” does not mean the common feelings of anger, fear, sadness, or joy; instead, it refers to the “dynamic processes created within the socially influenced, value-appraising processes of the brain” (Siegel, 1999, p. 123). At its most basic, emotion is an “initial orienting response” to stimulus, followed by an “elaborative appraisal and arousal” process that takes place within both the body and the physical brain; “primary” emotions are “the textures of the shifts in brain state that are the results of both initial orientation and elaborative appraisal-arousal processes” (Siegel, 1999, p. 124-125). Emotions are the body’s response to environmental and social stimuli. The emotional feeling states that one thinks of as emotions are reflections of changes in states of mind that result from physiological responses, the brain’s experience of these responses, and the mind’s interpretation of the brain’s experience (p. 124-126).

Human experience is emotional experience; the brain and body are constantly appraising and integrating external stimuli, including the mental and emotional states of others. According to Siegel (1999), “We are a social species, and having the ability to ‘mind-read’ or having ‘mindsight,’ lets us rapidly detect the emotional state of another”
Like other external stimuli, others’ mental and emotional states influence and alter an individual brain’s processes, structures, and functioning. It is in this way that human brains—and the minds connected to them—are socially and emotionally interdependent.

The human brain is an emotional brain; it is also a “social brain” that affects and is affected by other brains (Cozolino, 2006; Siegel, 1999). The development of the physical brain—and, subsequently, of the mind—is dependent upon social interactions and experience. According to Siegel (1999),

Relationships early in life may shape the very structures that create representations of experience and allow a coherent view of the world…This shaping process occurs throughout life, but is most crucial during the early years of childhood. Patterns of relationships and emotional communication directly affect the development of the brain. (p. 4)

The ways in which the human brain processes experience—including interpersonal experience—influences its physical development and the development of the mind. Furthermore, the hypothesis that brains and minds are primed for interaction and social interdependence is supported by the existence of certain kinds of neural structures and processes. “Mirror neurons” are specialized brain cells that are activated by the activities and behaviors of others:

These neurons are activated either when we witness others engaging in functional behaviors (such as using a tool or picking up an object) or when we ourselves engage in these actions. By bridging neural networks dedicated to perception and movement, mirror neurons connect the observed and the observer by linking
visual and motor experience. Mirror systems are suspected to be involved with many social functions, including learning, the evolution of gestural and verbal language, and empathic attunement. (Cozolino, 2006, p. 59)

The structures and processes of the human brain—and the development and functioning of the human mind—are affected not only by the mental and emotional states of others, but also by others’ physical actions and behaviors.

**Neurobiology and social play.** According to the most current neuroscientific research, the desire to play is a common denominator among all mammals (Brown & Vaughn, 2009; Panksepp & Biven, 2012). Social interactions that result from cooperative play utilize the social neural circuits of the brain (Panksepp & Biven, 2012, p. 354).

While work into the neuroscientific underpinnings of social play is still in its infancy, it is known that play occurs only when animals feel safe and secure, and that it is a marker of good health.

Pioneering research into the rough-and-tumble play of rats shows that this form of social interaction strengthens the subcortical brain regions that are associated with other emotional systems (Panksepp & Biven, 2012). Though these so-called “lower” brain regions are involved in play, higher brain regions are involved as well, particularly in the symbolic play of children. In fact, “there is growing evidence that the primal urge to play is an important influence in helping program higher brain regions...to become happy adult brains with abundant creativity and zest for life” (Panksepp & Biven, 2012, p. 365).

**Interpersonal neurobiology and block building.** Group block building is a kind of social play that utilizes and strengthens those brain structures that affect and are affected by social and emotional interactions and experience. Group block building offers
opportunities for young children to practice sensing each other and themselves; it encourages them to interact socially and collaboratively; and it allows them to observe others’ behavior and to contribute to peers’ learning experiences.

The block building area is an arena in which young children’s brains are allowed to interact on an emotional level, in which "mind sight" is needed to function effectively. Blocks are facilitators of social interaction; cooperative block play promotes the kind of social, emotional, physical, and interpersonal interactions that neurobiologists assert are essential to the healthy development of the physical brain and the human mind.
Analysis and Findings

Film

For my Analysis and Findings, please view the DVD included in Appendix B.

Film Script

Introduction.

In order to investigate the ways in which block building supports development across modalities and, specifically, how group block building can support social and emotional development, I observed children in my classroom building at several intervals over the course of the 2011-2012 school year. At the beginning of the study, I assigned each child to a small group of three; the small groups remained constant over time and included typically developing children as well as children who have special needs. During the building sessions, each child in a group was given five minutes to build independently, and then each small group of three was given five minutes to build together.

The children’s activities were video recorded; the edited recordings have served as the primary material for this film. This film illuminates each child’s strengths, challenges, and individual development over time, and examines the ways in which individual capabilities affect the children’s participation and social and emotional interactions in group block building.

EB.
October 31, 2011.

In this video, we see EB beginning a structure on his own in the block area. His physical development is illuminated here: he moves in a coordinated and efficient way,
which is evidence of typically developing motor planning, body-space awareness, and strength.

EB’s cognitive development is also on display in this clip. It is clear, from his purposeful movements and intentional choices of block sizes and shapes, that he is creating a symmetrical structure. The ability to recognize and create symmetry is a cognitive strength; preschool children who build with blocks are beginning to experience and understand symmetry and related concepts like balance, size, and shape (Brody & Brody, 1996; Davis, 1997; Hanline et al., 2001; Hirsch, 1996; Provenzo & Brett, 1983; Spencer, 2011).

EB remains calm and focused when parts of his structure fall. This is evidence of developing frustration tolerance, a social and emotional strength that serves children well when they attempt new and challenging tasks.

Here we see EB actually experiencing concepts related to size and shape, and developing spatial awareness through the blocks. He is able to manipulate the blocks and thus to begin to develop a physical understanding of the concept of “congruency.” This is an example of one way that block building helps children to develop an understanding of mathematical concepts and supports cognitive development (Brody & Brody, 1996; Davis, 1997; Hanline et al., 2001; Hirsch, 1996; Provenzo & Brett, 1983; Spencer, 2011).

EB.
January 5, 2012.

EB is adding to H’s structure and says that he is going to fix what he has knocked over so that H doesn’t have to build it again. This statement gives us some insight into EB’s capacity for consideration of others, and supports the idea that EB is developing empathy. Block building provides an opportunity for EB to use and develop this social
and emotional strength (Brody & Brody, 1996; Brody & Hirsch, 1996; Cuffaro, 1996; Hyson, 2004; Lindsey & Colwell, 2001).

EB’s physical development—his strength, balance, motor planning, and body-space awareness—allows him some mastery over the blocks. He is able to manipulate them in ways that illuminate his thinking and impact his experience. Here, for example, he is attempting to execute some mental intention, and having a physical experience that will help him to develop an understanding of “balance.” The blocks provide EB the opportunity to carry out his own intentions and to explore concepts of balance and cause and effect (Brody & Brody, 1996).

**EB.**
**March 1, 2012.**

Here we can see the ways in which block building supports and challenges cognitive development. This video shows EB building with intention, which here involves the alignment and patterning of these triangles. Clearly, EB is able to develop a plan, to hold his plan in mind, and to carry it out in concrete terms. The existence of mental intention provides insight into EB’s cognitive development and, specifically, into his emerging ability for simple abstract thinking. Block building supports and encourages this kind of thinking (Brody & Brody, 1996; Cuffaro, 1996; Johnson, 1996).

Block building promotes—and, in fact, requires—the development of social and emotional skills like problem solving, persistence, and frustration tolerance (Brody & Brody, 1996; Davis, 1997). Here, we see EB attempting to create an enclosure. He makes two attempts to close his structure: he tests one block in a certain configuration, and then another in a different configuration. He does not become frustrated, nor does he give up on executing his plan. Instead, EB persists in solving his problem and then accepts what
he has created. This kind of social and emotional strength—the capacity to persist in the face of challenge and to solve problems independently—is a key aspect of social and emotional development, one that is constantly being tested in the block area.

H. October 31, 2011.

H is a child for whom expressive and receptive language processing is a challenge. Independent building like this can allow a child with language challenges the opportunity to express his ideas through blocks; in this way, block building supports both cognitive and language development even for children with special needs (Brody & Brody, 1996; Cuffaro, 1996; Hanline et al., 2001; Hirsch, 1996; Johnson, 1996; Koplow, 2007; Pratt, 1924). However, this video also highlights the ways in which H’s language challenges might hinder him from sharing his ideas with others, and from participating fully in intensely language-based group block building that fosters social and emotional development.

Here, H is using four quarter circle blocks to form his “clock”; he is having a physical and visual-spatial experience of the whole-part relationship. Understanding the whole-part relationship is the basis for understanding other mathematical ideas and concepts, like fractions, money, and geometry. This is one example of the way in which block building supports cognitive development: specifically, the development of spatial awareness and mathematical understanding (Brody & Brody, 1996; Spencer, 2011).

This video shows that H possesses cognitive strengths: namely, the ability to use concrete objects (the blocks) to generate symbolic or abstract ideas (here, that of a drawbridge governed by a clock). Block building supports the development of abstract thought by challenging children to imbue concrete objects with symbolic meaning and to
use that meaning in their play (Brody & Brody, 1996; Cuffaro, 1996; Johnson, 1996; Vygotsky, 1978).

**H.**
**January 5, 2012.**

This video of H in January highlights the ways in which block building can support and challenge language and cognition. Here, we observe that it is a challenge for H to express his ideas fluently and coherently: at times, he needs help to make himself understood. Independent block building provides H with the opportunity to explore his own ideas and to express them in a relaxed, supportive environment; when his language is scaffolded, we can see clearly H’s developing capacity for abstract thought. For H, the blocks serve as what Vygotsky (1978) calls a “pivot”: he uses them to represent a building, a basement, and an elevator. According to Vygotsky, the ability to detach meaning from actual objects and to apply that meaning to representational objects is a major cognitive development signaling the emergence of abstract thought. As we will see, H’s difficulties with language make it a challenge for him to share his cognitive strengths with others; however, when his language is scaffolded by peers or adults, H is able to contribute some of his ideas and to benefit from the social and emotional aspects of group block building.

Block building challenges children to develop social and emotional strengths, particularly those related to problem solving (Brody & Brody, 1996; Davis, 1997; Hirsch, 1996). Here, we see H experimenting, using trial-and-error, asking questions, and thinking critically in an attempt solve his problem. We can also see that he is able to tolerate frustration and to persist in the face of multiple failures. These are skills and strengths that are cultivated through block building.
H.  
March 1, 2012.

Expressive language still poses a significant challenge for H. However, this clip showcases H’s language development and the progress that he has made between January and March. It is clear that H has developed some ability to engage others by asking questions and by supplementing his speech with gestures. Block building challenges H to use these new skills; watching H build allows us to observe them and his developmental progress. Later, when we observe H building with his peers, we will notice the ways in which his developmental progress in the areas of language and cognition affects his social and emotional experience, and the ways in which group block building supports and challenges his development across modalities.

R  
November 7, 2011.

Here, we observe R building an “attachment” and “pipes”; like H, she is using the blocks to transfer and reassign meaning. This is evidence of her cognitive development, and, specifically, of her emerging capacity for symbolic thought (Vygotsky, 1978). Blocks allow for this kind of thinking because they are an open-ended, concrete material: children are able manipulate blocks physically and mentally, and to assign meaning to them in whatever way they wish. Block building challenges children to think in symbolic and representational ways, and, in this way, supports and encourages their cognitive development (Brody & Brody, 1996; Cuffaro, 1996; Johnson, 1996; Pratt, 1924).

Block building also influences social and emotional development, particularly as it concerns the growth of positive self regard (Brody & Brody, 1996; Brody & Hirsch, 1996). In this video, we see R’s expressions of positive emotion—evidenced by her body
language, her movements, and her facial expression. We hear R call her structure “beautiful” and confirm that she is proud of it. Block building enables children to act upon physical materials in a constructive way, to see and gauge their own ability, and to begin to develop a sense of mastery and competence (Brody & Brody, 1996; Brody & Hirsch, 1996; Cuffaro, 1996; Davis, 1997; Hanline et al., 2001; Provenzo & Brett, 1983). In this way, block building allows to children to form a sense of themselves based on capability and strength.

**R.**

**January 5, 2012.**

This short video clip highlights one of the ways in which block building supports mathematical understanding. Here, we observe R counting the wooden figures that she has placed on her structure and the levels of the structure itself; she is practicing counting and one-to-one correspondence. Block building provides children with opportunities for counting, patterning, and practicing other mathematical skills (Brody & Brody, 1996; Davis, 1997; Provenzo & Brett, 1983).

**R.**

**March 1, 2012.**

Block building illuminates cognitive strengths, and provides the opportunity and materials for children to extend emerging cognitive abilities. Here, we observe R stacking square blocks for the purpose of moving them to her structure. We can infer from R’s purposeful behavior that she has a plan for a construction involving these squares. This is notable: R has developed two related intentions, and she is retaining and executing them simultaneously. One plan involves using square blocks, and the other involves moving those blocks efficiently. As discussed previously, the ability to develop a plan and to hold
that plan in mind while taking steps to carry it out is indicative of an emergent ability for abstraction. Block building promotes cognitive development by challenging children like R to practice this kind of thinking.

Block building also allows children to deepen their understanding of physical concepts through physical experience (Brody & Brody, 1996). R’s structure is a manifestation of her developing knowledge of balance, symmetry, patterning, and structural integrity. It also serves as evidence of her strength, coordination, and efficient motor planning. R’s physical competence allows her to execute her intentions, to explore and experience physical concepts, and to utilize experiential knowledge to build more and more complicated block structures. The blocks serve as tools with which children can deepen their understanding and competence; block building compels children to perform cognitively and physically challenging tasks. In this way, blocks act as scaffolders of development.

**EB, H, and R.**

**January 5, 2012.**

This group building session highlights the ways in which language ability impacts children’s social interactions in the block area, and the ways in which group block building supports social and emotional development.

For EB and R, language fuels interaction and the kind of collaborative building that promotes social and emotional development. Here, we observe EB and R using social and emotional skills while building together: they set limits, negotiate, share ideas, and plan. Group block building provides an opportunity for children to practice and hone these kinds of skills (Brody & Brody, 1996; Brody & Hirsch, 1996; Davis, 1997; Hanline et al., 2001; Hyson, 2004; Lindsey & Colwell, 2001; Pratt, 1924).
It is clear that challenges with expressive language and pragmatics hinder H from participating fully in language-based interactions with his peers. Because his language processing is slower than that of his peers and his utterances seem unrelated to what is happening around him, H remains on the periphery of these collaborative interactions. It is difficult for H to take full advantage of the opportunity that group block building provides for social and emotional skill-building (Koplow, 2007, p. 21).

We can infer from what we observe here that H is trying to involve himself in the group building. EB responds to H, but H’s difficulties with pragmatics are too challenging for them to overcome without support. Here, it is the blocks that support H’s peer interaction: he is able to join in a collaborative, social effort by contributing to their block structure. For H, the blocks facilitate social interaction. This is one way in which block building can support social and emotional growth, particularly for children with atypical language development (Koplow, 2007, p. 63).

Here, I am supporting the children’s interaction and scaffolding for H by asking a question that helps to him communicate and participate with his peers. Once H is able to clarify his idea and to connect his formerly vague “train” utterances to their penguins, R and EB seem eager to include him in their play. Children who have language-based special needs whose communication is scaffolded by adults or peers can benefit from the practice with language that inclusive group block building offers.

The scaffolding that occurs in the block area has social and emotional implications. Children whose learning is scaffolded are often able to perform tasks that are beyond them developmentally (Vygotsky, 1978). This can contribute to an increased sense of competence and confidence. Children who scaffold for others—as R is doing
here—often do it naturally and unconsciously; nevertheless, scaffolding gives these children the chance to learn to be patient, generous, respectful of difference, and flexible in their communication and thinking.

**EB, H, and R.**  
March 1, 2012.

These clips show the overall developmental progress of each child in this group. They also highlight the ways in which block building can support language and social and emotional development.

H still benefits from support for his language—here, I have prompted him to discuss a building problem with his peers. But we can observe that H’s communication has improved markedly: he has developed new strategies, skills, and abilities that make social interaction easier. When he is explaining to R which block was unstable, we observe H supplementing his speech with gestures, answering questions in a relevant way, and maintaining his side of a conversational back-and-forth. His fluency has also improved, which enables him to keep pace with his peers during verbal exchanges. H’s growth in these areas is a result of his own development, outside support, and practice with social skills and communication strategies. Group block building is one activity that provides the opportunity for this kind of practice (Brody & Hirsch, 1996). It compels children to utilize and expand those skills necessary for effective communication and collaboration, and, in this way, supports language and social development (Brody & Brody, 1996; Brody & Hirsch, 1996; Hyson, 2004; Pratt, 1924; Provenzo & Brett, 1983).

This exchange is an example of the kind of scaffolding that can occur among peers in the block area. Here, EB and R are scaffolding for H: H seems to model the structure and substance of his announcement on that of theirs. This helps him to clarify
his intentions and to align himself with the group. Using language that has been modeled for him by his typically developing peers, H makes it clear that he is building cooperatively alongside them.

For four year olds, group block building can be intensely language-based. Because of this, it provides opportunities for peers to scaffold communication for one another, and to practice using communication skills within social interactions. Involvement in and experience with the kind of interactions that group block building promotes encourages children to develop social and emotional skills: they learn to negotiate, to set limits, to communicate their desires, and to consider others’ ideas and perspectives (Brody & Brody, 1996; Brody & Hirsch, 1996; Cuffaro, 1996; Davis, 1997; Hanline et al., 2001; Hyson, 2004; Pratt, 1924).

S. November 29, 2011.

S is a typically developing four year old. This video from November illuminates her cognitive and physical strengths, and highlights the ways in which block building supports them.

Here, we notice S’s capacity for simple abstract thought. She is able to generate and articulate intention, to hold her intention in mind, and to carry it out in concrete terms. S also possesses the ability to detach the meanings of the words “house,” “river”, and “boats” from the actual objects and to apply those meanings to the blocks. The ability to manipulate meanings and to use concrete objects to represent those meanings indicates the emergence of symbolic thinking, a significant cognitive strength (Vygotsky, 1978). Block building supports and encourages symbolic thinking by making available concrete
materials that children can use to manipulate, reassign, and represent meanings and ideas (Cuffaro, 1996).

S’s ability to carry out her plan for the blocks is aided by her physical development. Her strength, coordinated and efficient motor planning, and body-space awareness allow her to move and manipulate the blocks according to her own desires and intentions. Block building is a physically demanding activity that illuminates, supports, and challenges children’s physical capabilities and development (Brody & Brody, 1996).


This short clip provides an example of the ways in which block building can foster emotional strength. Block structures serve as concrete representations of a child’s abilities; consequently, children who build with blocks begin to develop a sense of themselves through their constructions (Brody & Hirsch, 1996; Cuffaro, 1996; Davis, 1997; Provenzo & Brett, 1983). It is clear from her statement that S thinks of herself as a talented and capable block builder. She has had experiences in the block area that have contributed to confidence, a sense of mastery, and a positive sense of self.

S. February 13, 2012.

S’s cognitive and physical strengths are on display again in these clips: we see and hear evidence of her ability to develop and execute intention; we watch as she creates a symmetrical and balanced structure; and we observe her ability to lift and manipulate the blocks with strength, coordination, and precision. If we look closely, we may also notice the emotional effect that block building has on S: when she backs away from her
structure and smiles, we can infer that she is experiencing some positive emotion related to her construction that may translate into a feeling of pride in herself.

Block building provides children like S the opportunity to practice the cognitive, linguistic, physical, and emotional skills that they have acquired or are acquiring in the course of their development (Brody & Brody, 1996). In this way, block building supports development across modalities. Later, when we watch S and her peers building together, we will notice the ways in which individual development impacts the social interactions and emotional experiences of children, and the ways in which group block building can support their social and emotional development.

**EK.**
**November 29, 2011.**

This block building observation illuminates EK’s developmental abilities, and provides evidence of the ways in which block building supports them.

EK possesses the cognitive ability to think in symbolic ways and to understand and extend the symbolic thinking of others. For EK, these blocks are a bridge over the imaginary stream that S constructed earlier. He has connected his blocks with hers, has given his construction a related symbolic meaning, and is using all of that meaning in his play. The concrete and adaptable nature of the blocks compels children to endow them with symbolic meaning and to practice abstract thinking (Brody & Brody, 1996; Cuffaro, 1996; Johnson, 1996; Pratt, 1924). Furthermore, building projects like this that involve the ideas of more than one child encourage children to understand others’ ideas, to extend others’ thinking, and to consider others’ perspectives (Brody & Brody, 1996; Brody & Hirsch, 1996; Cuffaro, 1996; Davis, 1997; Hanline et al., 2001; Hyson, 2004; Koplow,
1997; Pratt, 1924). This supports not only cognitive development, but social and emotional development as well.

**EK.**  
**January 9, 2012.**

Here, EK identifies the source of his frustration and expresses his feelings appropriately. He also exhibits frustration tolerance and persistence. The ability to regulate one’s emotions, to tolerate failure, to recover from frustration, to identify the source of problems, and to persist in the face of challenge are emotional strengths that are utilized and tested consistently in the block area. Block building supports emotional development by challenging children to navigate emotionally demanding situations and to practice and develop emotional skills (Brody & Brody, 1996; Davis, 1997; Hanline et al., 2001; Hyson, 2004).

**EK.**  
**February 13, 2012.**

This clip provides clear evidence of EK’s cognitive development. In the preceding video from January, EK made a statement about his falling structure when he said, “It keeps falling down.” In this video from March, we observe EK ask a question about the cause of his structure’s instability, propose an explanation, and continue to build. He is directing a simple inquiry into the blocks and their physical behavior. Inquiry—questioning, observing, hypothesizing, and experimenting—is the basis for scientific learning and the vehicle through which we come to understand the world around us. Creating block constructions compels young children to explore the physical characteristics and behavior of blocks, to ask questions, to make predictions and
hypotheses, and to experiment (Brody & Brody, 1996). In this way, block building encourages inquiry and thus supports cognitive development.

I.

November 29, 2011.

I is a four year old for whom cognition, expressive and receptive language, motor tasks and planning, and social interactions are challenging. Her growth in these areas lags behind that of her typically developing peers, a fact that is reflected in her block play and constructions.

Here we observe that I’s strength and motor planning are not yet developed enough to allow her to build with these long blocks without a great deal of effort. Just moving the blocks presents a major challenge for I. However, it is a challenge that helps to advance her physical development. Lifting, pushing, pulling, and even just handling blocks provides children with proprioceptive input, which can contribute to the development of body-space awareness. The physical tasks of block building also allow children to improve fine and gross motor skills and to increase physical strength (Brody & Brody, 1996; Hanline et al., 2001).

As we have observed, most typically developing four year olds are beginning to use blocks to create symbolic representations; block building encourages them to engage in simple abstract thinking. Here, I engages mostly in stacking. We have already inferred that this has something to do with I’s physical capabilities, but it also gives us some insight into her cognitive development. I does not imbue her stacks with symbolic meaning, but instead refers to them as “stacks.” This is an indication that she thinks about them in a concrete way, and that she has not yet developed the cognitive capacity for simple abstraction. As I’s physical capabilities increase, she will begin to build more
complicated block structures (Hanline et al., 2001). As her cognition develops, she will begin to imbue them with meaning. For I, as for all of the children in this study, blocks act as scaffolders of development. They offer I the opportunity to utilize her current strengths, and further her development by presenting her with ever more challenging tasks.

I.
January 9, 2012.

Although this construction is as basic as the stacks that she created in November, the fact that I has imbued these blocks with symbolic meaning is evidence of a relatively significant cognitive development. The phrase, “This might be a house,” indicates the emergence of I’s ability for simple symbolic representation. It is likely that I’s cognitive growth is a result of her own internal development and her experiences both in and outside of the classroom (Crain, 1992; Elkin, 1976; Vygotsky, 1978). As we have discussed, block building is one classroom experience that supports and encourages the development of simple abstract thinking (Brody & Brody, 1996; Cuffaro, 1996; Johnson, 1996; Pratt, 1924).

This clip also illuminates I’s language abilities. Here we notice that her speech and articulation are similar to those of a younger child. We can also observe that expressing her ideas, needs, and desires seems difficult for I; her ability to make herself understood is inhibited by speech and expressive language challenges. As we will see later in this film, these challenges affect I’s social interactions and emotional experiences with peers in the block area.
February 13, 2012.

Here we observe I carrying long blocks with relative ease: her strength, gross motor abilities, and motor planning have improved immensely since November, when she struggled just taking these blocks off of the shelf. I is able not only to carry these blocks, but also to handle and manipulate them: this is the first time that we have seen I place any block on end, a feat that requires strength, motor planning, balance, coordination, and gross and fine motor skills (Brody & Brody, 1996). Block building illuminates I’s developmental progress, and provides her with the space, time, and materials to practice her developing physical abilities.

I’s developing physical mastery over the blocks allows her to carry out her intentions. Here, we observe as I considers the blocks, and then moves in a relatively deliberate way to and from the block shelf. Her construction—the letter “A”—serves as evidence for the idea that I is acquiring the cognitive capacity for developing and executing a mental plan. This capacity is indicative of I’s emerging ability for abstraction, an ability that is supported and encouraged by block building (Brody & Brody, 1996).

This clip serves as an example of the ways in which block building can contribute to a child’s positive sense of self. We can infer from I’s giddy expression that she is pleased with her construction, which reflects her abilities and represents her actual identity. Block constructions serve as tangible proof of a child’s abilities and strengths; block building allows children to develop a sense of themselves based on these qualities (Brody & Brody, 1996; Brody & Hirsch, 1996; Cuffaro, 1996; Davis, 1997; Hanline et al., 2001; Provenzo & Brett, 1983). Here, I feels good about her construction. Regular
and affirming block building experience will promote this kind of feeling, and the development of I’s positive sense of self.

**EK, S, and I.**  
**November 29, 2011.**

This group building session highlights the ways in which cognitive, language, and physical abilities impact children’s interactions in the block area, and the ways in which group block building supports social and emotional development.

EK and S both possess the cognitive ability to think in simple abstract terms and to create symbolic representations. Here, for example, EK uses a block to represent a hammer. EK and S are also typical in terms of their language and physical development. In all of these clips, we observe them use language to convey their ideas, to express their needs and desires, to plan, and to negotiate. Their fine and gross motor skills, efficient motor planning, and physical strength allow them to carry out individual and shared intentions with relative ease. EK and S’s cognitive, language, and physical abilities allow them to take advantage of the opportunities for collaboration offered by group block building. Collaborative group block building encourages children to practice social and emotional skills, and in this way, supports social and emotional development (Brody & Brody, 1996; Brody & Hirsch, 1996; Davis, 1997; Hanline et al., 2001; Hyson, 2004; Lindsey & Colwell, 2001; Pratt, 1924).

It is clear that I’s social and emotional experience in the block area is quite different from that of her peers; activities like group block building which draw upon cognitive, linguistic, and physical abilities present a significant challenge for her. In all of these clips, I engages in solitary block play. We can infer from our observations that I’s concrete mode of thinking and her expressive language and physical challenges hinder
her from collaborating with EK and S. Consequently, she is unable to practice the social and emotional skills that collaboration entails. However, group block building still supports aspects of I’s social and emotional development: it provides her with the opportunity act upon the blocks, and to begin to develop a sense of competence and mastery over them (Brody & Brody, 1996; Brody & Hirsch, 1996; Cuffaro, 1996; Davis, 1997; Hanline et al., 2001; Provenzo & Brett, 1983). Furthermore, group block building exposes I to the kind of language that fuels social interaction, and to the ideas and constructions of her peers. It is in these ways that group block building supports and scaffolds I’s development across modalities.

**EK, S, and I.**
**February 13, 2012.**

These clips provide a striking example of the way in which group block building compels children to use their developmental strengths and creates opportunities for the kind of scaffolding that furthers development.

Here we notice that EK is building a tower similar to the one that S constructed earlier on her own; we can infer from the style of EK’s tower that he is imitating S’s construction. This on its own is not that noteworthy: it is likely that EK could have built this kind of tower without S’s influence. What is noteworthy is the way in which EK and S are scaffolding I’s learning. We hear I echo EK’s speech, we notice her looking at his construction repeatedly, and we watch while she persists in creating a tower that seems to be modeled on the ones that EK and S have created. At this point in her development, I is able to carry and manipulate the blocks more easily than she did in November. Her fine and gross motor skills have improved, as has her motor planning. We have observed that
I is capable of standing long blocks on end, but we have yet to see her create a vertical structure.

Here, while EK and S play cooperatively, I continues to try and imitate their constructions. I’s initiative, industry, frustration tolerance, and persistence are remarkable: her structure has fallen several times, but she continues to build. Ultimately, the combination of her peers’ scaffolding and her own cognitive, physical, and emotional strengths enable I to create a vertical standing structure unlike any she has created before.

Group block building provides opportunities for children to learn from each other. It encourages children to expand their thinking, to explore new ideas, to communicate and collaborate, and to draw upon their own and others’ strengths to create new and more complicated structures. It compels children to persist in demanding tasks that challenge their development, and then rewards them by providing tangible evidence of their ability and effort. It is in these ways that group block building supports and advances children’s cognitive, linguistic, physical, and social and emotional growth.
Discussion

My data, observations, and analyses, combined with the literature that I have reviewed, demonstrate clearly the positive impact that independent and group block building can have on all aspects of early childhood development. Furthermore, my research exposes the contributions that independent and group block building make to social and emotional development in early childhood. My findings suggest that young children should be introduced and exposed to blocks and block play, and that independent and group block building ought to be regarded by educators and parents alike as an integral part of early childhood education.

Implications for the Project

This project has several implications. In the course of reviewing my video recordings, I realized that video of individual and group block building sessions can serve as a meaningful performance assessment tool in the early childhood classroom. My recordings of each individual child’s building activities allowed me to observe, document, and assess their cognitive, physical, language, and social and emotional development both in the moment and over time. My recordings of group building sessions allowed me to observe, document, and assess how each child’s developmental strengths and challenges impacted their social interactions and emotional experiences within a group. In addition, because my data was video recorded, I was able to review it repeatedly without having to rely on my memory of events or on handwritten notes. This ability to review events as they happened allowed me to make critical observations and to draw significant connections among events. Because block building involves the whole child and every area of development, and because video is such a practical and powerful
visual medium, I believe that it would be useful and beneficial for educators to use an assessment method similar to mine when evaluating the strengths, needs, and development of children in early childhood classrooms.

The film that I have created can serve as an educational tool for teachers and parents who may not understand fully the value of block play for young children. Through clear visual examples and using a step-by-step, in-depth analysis of the ways in which block building supports development, this film offers a convincing argument for the importance of having block building curricula in every early childhood classroom.

I plan to use the film that I have created as part of a proposal to expand the block building curriculum at the school where I teach currently. The early childhood classrooms where I work now are quite small with limited space for block building. As a result, block play is impractical and has become an infrequent activity; it is not a focus of the early childhood curriculum. My proposal for an expansion of the block building program will include: designating a larger, shared space as a “block room;” ordering more and a greater variety of blocks; informing faculty and parents about the importance of independent and group block building; and formulating a deliberate and thoughtful block building curricula in the early childhood program.
References


Appendix A

Photographs

Unit block.

![Unit block](http://www.oldfashionedblocks.com)

Unit block set.

![Unit block set](http://www.oldfashionedblocks.com)

Observations (Full Video Transcripts)

Individual observation: EB.
October 31, 2011, 12:55 p.m.
Length of observation: 2 minutes, 33 seconds.

[EB is not feeling well. Has a very bad cold and is very congested.]

Starts to build a structure using four squares on the shelf side of the tape.

D: EB, remember to keep your building on this side of the blue line, though.

Okay?

EB looks at me and then bends. As he does, he says, "Okay," and Slides his structure across the floor to the middle of the floor.

D: "Because everyone needs to be able to get to the shelf."

Hops up, moves easily and in a coordinated way. EB gets a scalene triangle from the shelf and turns back quickly. He places it on top of his square structure. As he turns, the structure falls. He turns back quickly, bends and squats over the structure and fallen blocks. EB places the blocks back the way that they were, stands up quickly and walks back to the shelf.

As he reaches into the shelf for a block, he keeps his head turned toward the structure, as if considering it. He takes a square off of the shelf, places it on the structure, walks back to the shelf...he is placing small squares on the structure one at a time.

EB takes another scalene triangle from the shelf and places it on the structure. The structure is now symmetrical. EB stands up and faces me. He pushes his hair out of his eyes.

D: "If you want to tell me what you're building, you can."

EB: "I don't want to." He is very quiet and subdued.
D: "You don't want to?"

EB: "I don't know."

D: "Are you sick today?"

EB: "Yep. A little bit." EB looks toward the other end of the classroom, where Shana is talking loudly to some other children.

D: "Yeah. It sounds like it."

EB: "Mm hm."

D: "And your nose is all red."

EB: "I'm all done." EB rubs his eye.

D: "You're all done? You have four more minutes. You can build anything you want!"

EB: "Uh, I just want to do this." EB is alternately looking at me and looking away. He is also shifting his weight from foot to foot as he talks.

D: "That's all you want to do?"

EB: "Yeah."

D: "Okay. Can you tell me about it?"

EB looks around, and then down at his building. He says, "I don't know."

D: "Because whoever comes after you, I want to tell them what it is you made."

EB: "Um, it's...um, it's...um, it's a, a, like, a castle of something."

D: "It's a castle? Will you show me the different parts?"

Another child comes over to speak with me. I respond to her. EB is listening. He turns toward his building. He walks toward it and bends a bit to point at the two triangles at the top.
EB: "These are like, these are like the top, and, and, this is this..." As EB points to one of the squares, it and one of the top triangles fall off of the structure.

D: "Oh, oops."

EB gets down on the floor, picks up the square, and places it back in its place. It falls again when he removes his hand. He picks it back up and puts it slowly and carefully on the building. He moves his hand away slowly from the square. Then he picks up the triangle and places it back onto the structure so that now the two triangles are no longer placed symmetrically.

EB sits up straighter. He looks at the two triangles and puts one hand on one and one hand on another. He seems to be comparing them. After a second, he turns the triangle in his left hand around so that the two triangles are facing in the same direction and the building is symmetrical.

Then he points to one of the squares on the bottom of the structure, turns to me, and says, "These are, are bottom parts."

D: "Those are the bottom parts?" As I am talking, EB gets up and begins to move out of the block area.

D: "Alright, you're all done?"

EB: "Yep."

D: "Thanks, EB."

**Individual observation: EB.**

**January 5, 2012, 11:43 a.m.**

**Length of observation: 3 minutes, 57 seconds.**

EB smiles as he walks toward the block shelf. He is light on his feet and his movements are well-coordinated. His posture indicates confidence.
EB begins to add blocks to the structure that H has created. He hums to himself. He adds squares to the top of the structure and it falls over, making a loud "crash." EB stands back as the building crashes; his facial expression remains neutral. He looks up toward me and then bends to rebuild the structure.

He begins to say, "I knocked that..." as he is rebuilding. He moves around the structure and knocks another block off. I tell him, "That's okay...accidents happen." EB smiles and says, "Whoa!" in response to the replaced block falling again.

He says, "I'm [unintelligible] again...so, so, H does, can't start all over again." EB has a stutter.

I clarify that he is building the structure back up so that H does not have to start all over again. EB confirms this and I say, "That's nice of you." EB smiles very subtly. He talks quietly to himself about where certain blocks go as he rebuilds the structure to look almost exactly as it looked before it fell.

EB begins to add other blocks to the structure. He pauses and looks toward the dramatic play area where ER and H are playing. He looks at me and points toward them. EB continues building for a moment and then stands up and says, "I'm done already." He stands, faces me, and repeats a bit louder, "I'm done already." He swings his arms from side to side in front of his body as he walks toward me; he repeats, "I'm done already."

I tell EB he has more time to build and that it is not time to go yet. He continues to build, adding blocks to the structure he and H have contributed to.

EB adds a block on top of the board on the top of the structure. It falls. He replaces it and then adds another block to the top of the structure. The entire structure falls. EB has his back toward me, so I cannot see his facial expression, but he does not
seem to be upset. He begins to rebuild the structure; as he does, he says forcefully, "This keeps falling!" I ask him what he can do, but he does not respond. Instead, he continues building, talking to himself quietly as he does.

EB builds slowly, quietly, and deliberately for a few moments. He hums quietly while he builds.

ER walks to the entrance of the block area and starts talking to EB about the helmets in the dramatic play area. EB responds to ER, and ER continues, telling EB that he is going to save one of the helmets for him. I interject and tell EB that he will be back to play with him in a minute or two.

EB places a block on the top of the structure. As he does, he says, "One more block and I'm done." Then he turns to me, swipes his hands together, and says, "I'm all done!"

I say, "All done?" EB nods and I say that he can go.

**Individual observation: EB.**
March 1, 2012, 1:00 p.m.
Length of observation: 5 minutes, 25 seconds.

Me: "You get to build for five minutes by yourself! And then H and R will come in."

EB swings his arms back and forth across his body and looks toward me. "And then, and then we're gonna build all together?"

Me: "Yep."

EB responds, "I fink I builded [unintelligible]." As he is talking, he walks to the block shelf and along the length of it. He stop and chooses a block and turns back to the
block area. He leans over and puts the block down with a "plop." He stands quickly. EB's stance is very open; he swaggers a bit when he walks.

He turns back to the shelf and chooses another of the same type of block, turns back, puts the block down, and stands, looking down at it. He leans down quickly and moves the block so that it's edge and corners line up precisely with the block already on the floor.

EB continues to move quickly and easily back and forth from the shelf to the floor. He chooses the flat, scalene triangle blocks and is lining them up in a patterned way (flat end against flat end, top angle against top angle). In the other end of the classroom, the teacher is talking to the other children about handwriting. She tells them that they are making the letter "D" today.

EB says to me, "[D___] starts with letter 'D'." He smiles as he continues to build. I respond yes. EB bends to one knee and flips one of his triangles over so that the flat edge is more precisely aligned with the edge of the triangle next to it. Then he works from right to left, re-aligning all of the blocks.

EB continues to build. He takes unit blocks from the shelf-one at a time-and begins to create a rectangular enclosure. The triangles form one "wall" of the enclosure; the unit blocks form the others...

While EB works, he looks up at me and also into the other part of the classroom where children are talking and the teacher is teaching.

EB has built two walls of the enclosure. He places one unit block down at the open end of the enclosure. The block down not quite reach from one side of the enclosure to the other—the space is not closed. EB moves the blocks around (in what seems like an
attempt to close the space) and then leaves the structure as it is. He rises and walks to the block shelf. I hear him utter, "Hm."

EB chooses a small triangle from the shelf. He bends from the waist on one leg with the other leg out behind him and places the block gently down on top of one of the triangles that forms one wall of the enclosure. He moves back to the shelf, chooses another small triangle, turns back, and places it down. He chooses another small triangle and, after moving the triangles around a bit, creates a small structure out of the three triangle (two as the base, one inverted between the two). EB squats while he works and he appears very focused (eyes focused, head down, mouth slightly open).

Me: "EB, will you tell me about what you're building?"

EB looks down at his structure and smiles slightly. He says, "Hm..." very quietly and looks down. He smiles shyly. Then he says, "It's a zoo." He smiles and looks at me and then looks away. He swings his arms from side to side in front of his body.

Me: "A zoo?"

EB smiles. "Mm hm."

Me: "I'm excited to see how it turns out! Keep going!" EB walks closer to where I am sitting. He continues to swing his arms back and forth. With a final, strong swing, he turns his body back to the block area and over to the shelf. He pauses, trips over his feet slightly, and then moves to his right to choose another small triangle from the shelf. He turns back to the structure, bends, holds the block over the structure, and then places it down deliberately on top of one of the unit blocks. He stands quickly and walks to the shelf for another triangle. EB continues to move back and forth between the block shelf
and the structure. He is placing small triangles one at a time on top of the unit blocks that form the enclosure.

Me: "EB! You have, like, thirty more seconds to add some stuff." EB looks up quickly and then back down to his structure. He says, Okay, and then continues to build. I call Rover and tell her that she is going to build next. EB looks up from his building while I am talking to RC; he appears to be listening.

EB begins to walk out of the block area. I am tying R's shoe and I say, "Hang on, EB." He stops and wanders back into the block area. He appears to be waiting.

Me: "Do you want to tell R what you made?"

EB, quietly "Okay," and then, to me, "A park."

Me: "A park? Tell her." EB turns to R.

EB, to R "Um, a zoo."

Me: "A zoo?" EB is facing me and R is walking near and around EB's structure, looking down at it.

Me: "Do you want to tell us about the different parts of it?"

EB stands, with his weight on one foot, swinging his other leg back and forth. He says, quietly, "No." He is smiling.

Me: "No?" I laugh gently. "Okay."

EB leaves and R begins to build.

Individual observation: H.
October 31, 2011, 1:01 p.m.
Length of observation: 5 minutes, 33 seconds.

D: "I'm going to be taking a little bit of a video of you. Is that okay?"
H walks toward the shelf as I am talking. He turns back toward me and says, "Yeah." H holds an scalene triangle in his right hand and makes a sort of loose gesture toward EB’s structure with his left.

D: "Do you know what EB said? He said that that was the start of a castle."

H looks toward me but does not acknowledge verbally what I have said. He holds the scalene triangle loosely in two hands and walks haltingly toward the structure.

D: "You can build on it, you can make it into whatever you think it is."

H looks up as I am talking, but not toward me. He squats and places his triangle on the top of the structure. He says something unintelligible as he is placing the block. It falls. He moves quickly to sit on the floor and moves the block so that it is forming a sort of ramp leading to the structure.

H: "This is how they can get up to the castle." He gestures toward and up his ramp. He stands up quickly and faces me.

H: "Yeah, that's how they get up to the castle." H shifts from foot to foot and points to the structure. He starts to walk around it. Says, "If they knock, if they..." he is moving, hopping haltingly around the castle.

H: "If the people want to knock it down, then just try again." He flaps his left hand toward me, smacking his feet on the floor as he hops up and down. He turns back toward the shelf.

H chooses another scalene triangle and walks back toward the structure. He places it on the other side of the structure like another ramp. He talks quietly, ostensibly to himself.
H jumps up quickly, swings his arms out to the right, and hops up and smacks his feet down on the floor. He hops toward me quickly and then away toward the shelf. He chooses one long butter stick from the shelf, moves toward the structure, stops, looks back toward the shelf, and chooses another long stick.

H: "These are going to be the doors." He walks slowly toward the structure. He stops and stands above it. H looks toward the sound of the other children in the room and appears lost in thought.

D: "Those are going to be the doors?"

H looks toward me. He says, "Yeah, those are the doors." He bends down to put the sticks on either side of the structure. They look like wings.

H: "If you close...the drawbridge will open any second."

D: "Which is the drawbridge?!" H looks up and toward me.

H: "Both. They're both the drawbridge." He moves one of the ramp-like triangles up so that it's standing, and then moves around the structure to do the same to the other. One of the triangles on top of the structure falls off. H does not move toward it.

D: "You can fix that if you want to."

H does not respond verbally, but picks the triangle up and places it back where it had been. It falls again. He picks it up again.

H: "When you drop the drawbridge, it will open." He has his hand on one of the scalene ramps and is moving it up and down like a drawbridge. He stops and looks back toward me.

D: "If you drop the drawbridge, it will open?"
H: "Yeah." H sits for a few seconds looking at his building. Then he points at it and gets up quickly to move toward the shelf. He spins his body around as he walks. He points to the structure. He says, "You just click your finger on it."

D: "And it comes down?" H looks toward me.

H: "Yeah! They will wake up." H gestures with us hand when he says "wake up"-like a little burst. He turns back toward the shelf and straightens one of the small isosceles triangles on the shelf.

H takes two quarter circles off of the shelf and talks quietly to himself. "Pretend [unintelligible]..." As he walks with them toward the structure, he holds them so that their edges are lined up, making a half circle. He turns back toward the shelf and reaches for another quarter circle. One of the blocks falls. He does not respond, but instead reaches for another quarter circle on the shelf. He is attempting to hold all four quarter circles. Two of the blocks fall. H bends down, and moves down to the floor while holding two of the blocks against his stomach with his left hand and arm. With his right, he reaches to pick up the other fallen blocks.

H pushes the blocks toward the structure and Slides himself across the floor. He lets the other two blocks fall to the ground.

Another child comes over to the block area. I say, "You know, E., this is H's time to build. You need to go find another activity." H is looking at the other child. He is not building, but holds one of the quarter circle blocks in his hand.

H puts two of the quarter circles together and appears to be trying to articulate something-he is moving his mouth. Then he says, "This is, this is the block." As he talks, he is looking toward the other end of the room.
D: "That's a clock?"

H stands up and walks toward me. He is looking toward the other end of the room. He appears to be distracted. He says, absentmindedly, "Yeah. I need to..." He stops and looks. "We are going to [unintelligible] a clock." As he says this, H reaches toward the shelf.

D: "H, can you tell me more about the clock?"

He makes eye contact. He has gotten a bricked from the shelf. He says, "It's one o'clock. Is how much the time...will tell you when the drawbridge, when the drawbridge drops down!" He gestures toward the structure as he speaks. H's articulation is not smooth or fluent and it can be difficult to follow him.

D: "It tells you the time when the drawbridge drops down?"

H: "Yeah. When it's noon, when it's, when it's, when it's twelve, when it's twelve o'clock, then..." H wanders toward me and then away from me as he is talking. He is holding the bricked with two hands in front of him. "...then the drawbridge will drop down." He bends and sits near the quarter circle blocks. "When it's twelve o'clock, the drawbridge will drop down."

H stands the bricked on its end and moves one of the quarter circle blocks around on top of it. It appears as if he is trying to figure out how to make it stand on top of the bricked.

H is building on the shelf side of the blue line. I remind him that he needs "to stay" on the "correct" side of the blue line. H moves his body to the "correct" side of the tape. I clarify that he needs to keep his building on the right side of the tape.
H: "The blocks have to stay...?" H looks down at his structure and at the tape and then reaches down and moves his bricked to the "correct" side of the tape.

D: "There you go!"

H: "You can only take blocks from here? [H points to one of the shelves.]

D: "No, you can take blocks from there, too. You know what, H? You have about one more minute to finish up what you're building."

H looks up at me questioningly. He says something about his clock. He is moving his bricked around. Then he puts his four quarter circles together to form a circle on the floor.

H: "This...you should...there's only one door. This is, the clock is..." H stops talking abruptly and looks down at his "clock" as if considering it.

H points at his clock and says, "The aliens are coming."

D: "The aliens are coming?"

H: "Yeah...." H looks toward the other end of the classroom. "...Yeah, they're coming out of my Toy Story game."

I laugh. H says, "Yeah! And my new toys. They're going to come! [squeals]"

D: "Alright, H. Your time is up." H looks up toward me and his face appears worried.

H: "Okay." Then pointing to his clock, "This is how [unintelligible]...and then it comes to here and it gets back to red and..."

D: "Okay, H. Let's go find out whose turn it is. Okay? Come on." I start to move away out of the block area. H is looking down at his circle and holding it with two hands on either side.
D: "Come on, H." H jumps up suddenly and runs out of the block area.

**Individual observation: H.**
**January 5, 2012, 11:36 a.m.**
**Length of observation: 7 minutes, 8 seconds.**

H sets up a structure-like a tower- using three small flat boards and two large cylinders. It is a pattern.

H is off-camera for a full thirty seconds. He is sitting near the area where the children keep the wooden trucks and airplane. At one point, he rolls a truck filled with small wooden figures back and forth into the block area. Then he stands, walks toward the entrance of the block area, and calls out to me, "There's la...there's a truck, there's a truck comin' to the, to the block building." I walk into the block area with H and tell him that I am going to hang out with him.

H repeats, "Look. The truck is gonna come to the block building." Sometimes, the quality of H's speech and his articulation make it difficult to understand him; it sounds like his speech is slurred at times and he speaks haltingly.

I say, "You're driving your truck over?"

H tells me it is the block truck. He drives the truck over to the structure that he has built. He gets up quickly and takes two blocks from the shelf. He places them down adjacent to his structure.

H takes all of the figures out of the block truck and places them one by one around the base of his building. I ask him what he is doing. He responds, but his back is to me and he speaks quietly, so I cannot understand him. He begins taking the figures off of the structure and putting them back into the bed of the truck. He talks while he does this, but I cannot hear what he is saying.
I say, "This is a what?"

He responds, "That is a basement."

I ask, "The basement of what?"

He responds, "They cannot come in the basement." I ask why; his response is quiet and his back is to me, so it is unintelligible.

H gets a double unit block from the shelf and takes it back to his structure, where he attempts to lean it against his building as if to create a ramp. He succeeds, and reaches for his truck. Then he leans back, pauses, and looks at his structure.

H attempts to roll the truck filled with the figures up the ramp he has created. At a certain point, the bed of the truck tips, the figures fall out onto the floor, and the ramp slides off of the structure and onto the floor. H appears unconcerned; he flinches and closes his eyes at the initial crash, but, after that, his facial expression remains neutral. His pushes the truck forward a bit more, into the structure, and when it falls, he says calmly, quietly, and relatively flatly, "Oopsie." And then, "Boom."

H begins to rebuild his structure. He talks to himself quietly about the truck trying to get up to the apartments. He collects the figures from around the block area and puts them back into the bed of the truck. He recreates the same structure as before and then begins to roll the truck toward it. H leans his weight against his hand that is on the truck and the bed tips and the figures fall out onto the floor again. H's expression remains placid; he says, "Boom," very quietly. Then he begins to put the figure back into the truck.

H puts his hand on the front of the truck (on the cabin, which does not move) and rolls it up to his structure. He backs the bed of the truck up to the structure and dumps the
figures out onto the floor. He looks down at the truck and figures, rights the bed of the truck, begins to place the figures into the bed again, and says, "It didn't work."

I ask, "What are you trying to do?"

H responds, "I'm trying to...pour...the" He stops talking as if he has lost his train of thought. He is putting the figures into the truck. He places the last one in and looks up at me.

I ask, "What are you trying to do?"

H says, "I'm trying...to see if there's an elevator...to carry them up." He reaches for another fallen figure and then continues, "But there is no elevator." H's speech is halting and it often seem as if he gets distracted before he can finish expressing a thought.

After a moment, H looks toward me and says, "How can we make an elevator?"

I say, "I don't know, H. That's a good question. What do you think?" H looks at his structure, around the room, at his truck, and at his structure. He reaches for the truck and the bed tips over again, spilling the figures all over the floor. He does not seem to respond; his expression is neutral as is his body language. He rights the bed of the truck and begins to place the figures back in.

I say, "You know what I think, H?" H looks up at me. "Maybe I'll let EB come in here and build for a little while and then you can come back. You can work on your elevator. You can think about it while you're somewhere else." EB, who is standing in the dramatic play area adjacent to the block area, says something to H, who looks up and over to EB

H collects the rest of the figures from the floor and puts them back into the truck. I tell him again that he can think about his question about the elevator while he is playing
somewhere else. I call to EB to come and take H's place; H turns to me and says, "He can build the elevator." I tell H that he can talk to EB about it.

EB walks over and H says to him, "There's something missing with...the block building. To carry all the people up...they're still in the truck...there's no elevator." I repeat that there's no elevator. EB looks at me as I say this.

**Individual observation: H.**
**March 1, 2012, 1:10 p.m.**
**Length of observation: 4 minutes, 51 seconds.**

H walks into the block area. He walks slowly with his hands in the pockets of his sweater.

Me: "Take a look at what the building looks like now. You can add to it. You have five minutes, okay?" H does not respond verbally. He walks around and past the structure to the block shelf. He chooses two regular scalene triangles from the shelf, bends to a squat, and places them, one at a time, onto R's hollow block structure.

H says, "Look." He looks up at me briefly, and then chooses another block—a small arch—from the shelf. H stands, walks around the structure, leans forward, and places the arch in the middle on top of the hollow block structure. He stands back up and cocks his head a bit, as if considering the structure. Then he walks back to the block shelf.

H's movements are sometimes halting and seem a bit awkward.

H chooses another of the same type of triangle and places it on R's other structure. Then he reaches into the block shelf behind him and pulls out (with some effort) a large arch. He stands and carries this block around the structure. He bends and places the arch onto the floor, near one of the cylinders that make up the base of the structure. Then he rises to standing and hops up.
H walks around all of the structures and back to the block shelf. He chooses a small square, walks back to one end of R's hollow block structure, and puts the block on top of one end of the hollow block that is sticking out. He pauses there for a moment; he seems lost in thought. Then he picks up the block again and places it on the floor at the end of the structure. Then H turns the block flat and Slides it underneath the hollow block (where the other small square blocks are holding it up). He moves his body so that he is bending over that part of the structure and his head is at an angle that allows him to see underneath the structure.

He rises to standing and walks to the shelf, where he chooses another square block. He bends and places this square underneath the end of the hollow block closest to the block shelf. He stands again and says quietly (to himself), "Okay." And then, "I need more squares." He appears to be a bit distracted; the block drops from his hands to the floor. He bends and picks it up; he remains on his knees and fits the square underneath the structure.

H talks to himself quietly as he works. I cannot hear what he says, only that he is talking.

H continues to take squares from the shelf and to Slides them under the structure until there are not any squares left. H moves his body and begins to lean toward the structure; he knocks it with his chest and the structure moves. A few blocks fall, including the small arch in the middle. H sits up quickly. He replaces a unit block that fell off of the end of the structure nearest him. Then he stands. He seems a bit off-balance, like his weight carries him too far backwards, and he leans into the wall behind him as he moves sideways around the structure. He is smiling.
H bends, squats, and reaches for the small arch that fell onto the floor. He replaces it on the top in the middle of the structure. Then he stands back up quickly, looks at the building, and walks to the block shelf. He stands for a moment with his hand on a block and then takes it off of the shelf. He walks haltingly to the end of the cylinder structure nearest me and begins to place the block—a scalene triangle—onto it.

Me: "Hey, H." He looks up and toward me. "Can you tell me what you're doing?"

He takes a big step away from the structure and seems to point loosely at it. He trips a little bit before taking another step.

H: "This is...this [pointing, and walking toward the other structure]...these are squares..."

Me: "Yeah, I do see all those squares."

H: "Those squares stop..." H gestures to the bottom of the structure with his foot. He is leaning against the wall.

Me: "Those squares stop what?" H has walked to the block shelf. He pauses and turns, looking down at the structure.

H: "Stop..." H walks to the front of the block area. He is smiling. "Stop the rectangle and it came down and landed." He gestures with his arm-up and then down. Then he turns abruptly and walks back toward the structure.

H: "And...and this [pointing toward a block on the top of the structure]...and this...block..." H is walking around the structure. "...made..." H hops up. "...is gonna...is, is [unintelligible]." H is now standing near the hollow block structure again. He bends down and puts his hand on it and it falls over.
Me: "Oops." H looks up at me. He appears to be disappointed. His brows are close together and his mouth is frowning. I say, "You can fix it." H bends down. He lifts one end of the long block that has fallen and begins to slide it back into place with the other blocks still on top of it. More of the blocks fall. H looks up at me—he appears to be smiling slightly.

Me: "You can fix it!" H shifts his weight to the right and lifts one long block with his right hand and one with his left. They are crossed over each other in front of him. He begins to lift the block in his right hand into place while still holding the one in his left.

Me: "Yeah! Use two hands." H looks up at me. He continues to place the block into place with one hand. I say, "You can fix it." He is able to get it back into place, and then he shifts his weight to the left, and with two hands, puts the other long block back into place on top of the first.

Me: "There you go!" H lets go of the block; it is not completely balanced and leans a bit toward him. He blinks as the block hits the one beneath it. Then he lifts a double unit block; his grip seems loose and the block drops with a "bang." H blinks, puts the block on top of the leaning long block, and then, with his other hand, stacks a double unit block down on top of that one. Then H replaces the two triangles that have fallen off of the structure.

Me: "H, you know what I'm noticing?" H looks up. His eyebrows are raised. "The long block you have on the top of that other long block," H looks down at the structure and nods very slightly, "It's not balanced, so it might Side. You might want to..." H picks up the end of the long block and begins to slide it slowly. I say, "Yeah...maybe balance it." As H slides the block, the other blocks beneath it shift slightly so that it becomes even
more imbalanced. H reaches for the other end of the block with his other hand, but he seems confused. He says, very quietly, "I think [unintelligible]."

Me: "Do you need some help?" As I am saying this, the blocks fall again. H's eyebrows go up and he says, "Whoops." Then he begins to shift the blocks again. He says, sighing, "Like this." H does not rebuild the same structure, but instead begins to stack the fallen blocks up.

Me: "EB and R!" And then to H, "H, EB and R are gonna come back and build with you. Sound good?" H stops building when I say his name and he looks up at me. Then he rises quickly and shouts, "Yes!" He walks to the entrance of the block area, does a little skip hop, and smiles. He says, "Oh!" and hops up again with his arms out at his slides.

**Individual observation: R.**

**November 7, 2011, 1:05 p.m.**

**Length of observation: 4 minutes, 51 seconds.**

D: "R, you know LK and ER were building before you, right?" R looks up at me from the place where she is sitting on the floor and nods. LK speaks up from the dramatic play area: "You can add something to my building!"

D: "That's what she's going to do!"

R places some triangle blocks on the floor around the structure. She seems to be doing this haphazardly. ER is talking to me from the dramatic play area; R is getting blocks from the block shelf. She moves quickly back and forth between the shelf and the structure and carries several blocks at once. She looks up and toward me and ER every once in a while. I tell ER that, if he needs help with something, he needs to ask Shana. He says okay.
R takes three long butter sticks from the shelf.

D: "R, you're using so many of those long blocks." R places her stack of blocks on the floor and then picks one up. She moves quickly and with intention as she slides along the floor toward the back of the structure. She places one of the butter sticks down at the far end of the structure and then slides on her knees back toward me (and the front of the structure). She has her back to me as she picks up the other two butter sticks and places them in a "V" position inside of the enclosure that LK and ER have built.

R moves back and forth from the shelf to the structure. She chooses one block at a time-triangles-and places them down both inside the "walls" of the structure and outside (on the floor). Her movements seem to be directed and intentional, but her placement of the blocks does not.

D: "R, do you have an idea for what you're building?"

R has bent down to pick up a dropped block. She pauses and looks up at me while I am speaking. When she speaks, R rises quickly from her bent positions and sort of jumps up as she reaches her standing position.

R: "I'm building a [unintelligible]." R sweeps her hair back and out of her face with two hands. She moves quickly to the block shelf and chooses another triangle. She walks back to the structure quickly and places it down on the flat blocks that ER laid down.

D: "You're building a what?" R stands, spins on one foot toward me, sweeps her hair back from her face and says, "I'm building a [unintelligible]." R has a lateral lisp that sometimes makes her speech difficult to understand.

D: "A what?"
R [somewhat forcefully, perhaps exasperated]: "An attachment!"

D: "An attachment?" R is reaching into the shelf; she leans back, looks at me, sweeps her hair back from her face, and nods.

D: "To what?" R holds a block in both of her hands and looks down at the block structure.

R: "To the building!" R's tone seems impatient; she gestures to the building with the block she is holding.

As R is placing more triangles on the flat block that is on the ground, I ask, "What do you think that building is?" R stands up and looks down at the building. Her back is to me and she is shifting her weight back and forth, swinging her hips.

R: "Uhhhhh...a castle building." She places a unit block down among the triangles, stands up quickly, and walks/marches/prances toward the block shelf with her arms outstretched.

D: "You think it's a castle?" She nods. "What is your attachment?"

R is choosing more blocks—triangles and unit blocks—from the shelf. She turns and walks on her toes, lightly, back to the area where she is working and places the blocks down. As she does, she says, "It's pipes."

D: "It's pipes?" R nods. "Hmm." R continues working. She is squatting down near her blocks on the floor/flat block. When she stands quickly, she hops up and away back to the block shelf. She says something about "an attachment" and "pipes" but I cannot understand what she is saying because her voice is very quiet—almost breathy—and her lisp makes it different to understand.
R continues to walk back and forth from the shelf to her part of the structure. Her body movements are very quick and she is light on her feet. She makes sweeping and seemingly dramatic gestures with her arms, as if she is flying and pirouetting.

D: "Okay, R, you have two minutes left for building." R is at the shelf; she chooses some blocks and walks quickly back to the area where she is working. She slips on the floor—her shoes are ballet flats and the soles seem slippery. She falls on her bottom.

D: "Ouch." R does not respond, nor does she appear to be hurt or upset. She puts a block down. She is moving more quickly now than before; she is also choosing a different type of block (the small isosceles triangle). She places several down and then, after placing one, she stands up quickly, spins around to face me, and smiles broadly. She sweeps her hair out of her face and then spins back slightly toward her structure.

D: "Tell me what makes you smile about that building?" R turns back to me and smiles again broadly. She twists her hips and shoulders back and forth a bit; her shoulders are hunched up and she averts her eyes from mine. She spins herself a bit to the right. She looks down at the structure and points, and then spins back to me and smiles while looking at my face.

R: "Look!"

D: "I am looking. Tell me!"

R smiles broadly. She stretches her arms up, sweeps her hair off of her face and back, and says, "It's beautiful." She looks directly at my face.

D [smiling]: "You think it's beautiful?" R nods and smiles a bit more shyly.

D: "Are you proud of it?" R looks and nods. She swings her hips back and forth.
D: "You have some more time." R turns her body toward the shelf and walks to it with her arms stretched out, extended from her slides. She chooses more small triangles and places them down in the same area. She springs back up and prances back to the shelf. She gets more triangles and sort of skips back to place them down.

D: "You're putting a lot of those triangles out." And then after a few more seconds, "Okay, R, you can add two more blocks." R adds two more blocks, springs up and bounces to standing, and looks right at me. She is smiling.

D: "Do you have anything to tell me about it?" R shakes her head "no."

D: "Okay, thanks!" R smiles, sweeps her hair back, and walks out of the block area with her shoulders square and chest out.

**Individual observation: R.**
**January 5, 2012, 11:47 a.m.**
**Length of observation: 4 minutes, 46 seconds.**

The structure that H and EB have constructed is standing in the block area. R stands in front of me, holding a block with two hands.

I tell her that H was trying to figure out how to make an elevator for the building. R looks at me while I am speaking; she does not acknowledge what I have said beyond this.

R bends to the truck full of wooden figures, takes one out, and begins to play with it on the structure. She takes out one, two, three more, and hops them across the floor from the truck to the building, and then up the building from "floor" to "floor." R talks quietly to herself as she plays. When she has four figures standing on top of the structure, she pauses and counts the figures, pointing to each one as she says its number.
R continues moving the figures from the truck to the building and up to the roof. She sings quietly to herself as she hops the figures up each "floor." She does this with ten figures.

When she has placed all of the figures onto the structure, R begins to build with blocks. At the other end of the classroom, the teacher has signaled "clean up time" by turning out the lights for a moment. R seems rushed; she moves quickly back and forth from the structure to the block shelf.

At one point, R loses her balance while kneeling and knocks over a few blocks. She rights herself and rebuilds the small structure she has knocked over.

While R is building—she moves quickly and energetically back and forth from structure to shelf, sometimes skipping. I say, "Hey, R? Can I ask you about your people?" R points to the people on the structure and says, "They're on the building." I ask her what they are doing on her building, and she responds, "They're sleeping." I ask her what kind of building it is, and she says it is a little building. She continues to build while we are talking. R places triangles around the structure, much like she did during her first session in the blocks months ago.

EB and EK talk to R from the dramatic play area where they are cleaning. They repeat several times each that they like her building. R continues to build and seems not to acknowledge them. She sits down near the structure, places a block on the floor, and then turns and wheels the truck away from the structure. She parks it back near the other wooden trucks and airplane.

The other children are meeting on the rug. I tell R that she can add a couple more blocks and then she has to go to the rug, too. R places some small triangles down, jumps
up and rushes over to the block shelf, gets some more small triangles and adds them to the small structure she has made near the front of the group structure. Then she rushes out of the block area and to the rug.

**Individual observation: R.**
March 1, 2012, 1:05 p.m.
**Length of observation: 4 minutes, 24 seconds.**

R has come into the block area. She begins building while EB is still here. He has stated that his structure is a "zoo."

Me: "R, you know you have five minutes, right?" R looks up at me and nods. I say, "Cool."

EB had added two small squares to his enclosure. R chooses two small squares from the block shelf, places them on top of one of the walls of the enclosure, and then turns back to the shelf. She chooses four small triangles from the shelf; R loads two of the blocks into her left arm and then holds two more in her right hand. She turns, drops to her knees, places two squares on the floor, and then unloads the other two from her arm. She talks quietly to herself. I hear her say, "Alright," and she looks down at the structure and moves some of the blocks that are already there. She stands and bends, and begins placing the squares onto the structure; she places them on top of the unit blocks that form the walls of the enclosure, and next to the small triangles that EB already placed down. R places the last of her four blocks, and, as she is standing up straight, claps her hands together once. Then she moves to the shelf quickly.

R loads up her arms with blocks as before. She walks back to the side of the structure that she was working on, drops to her knees, and places the blocks on the floor. She pauses for a moment, and appears to be staring at one part of the structure. Then she
bends forward and begins to place the squares onto the structure. R talks to herself very quietly as she builds. When she has placed the last of her blocks onto the structure, R leans forward, and points to and counts aloud the triangles on the side of the structure opposite where she is sitting. She hops up from the floor energetically with her hands and arms raised and walks/trots to the shelf. There, she loads up her arms with four small squares.

R turns back to the structure. She looks at me and then kneels and places the blocks, one at a time, onto the structure. She has one block still in her hand—there is not room for it on the structure's wall. She places the block inside of the enclosure near the end, and then turns and claps her hands together once as she rises from the floor.

R walks quickly to the block shelf. She stands in front of the small square and uses her arm to sweep several of them to the front of the shelf. Then she begins to stack the blocks on the shelf. She stacks five blocks, slides them off of the shelf with her hands, and lifts and holds them using her hands, chin, and chest. She turns carefully and walks slowly to the structure. She bends slowly to her knees and places the stack of blocks onto the floor. Then R places the blocks onto the floor and moves them around. She appears to be studying them in several different positions. She moves the blocks, pauses and looks at them, and then moves them again. When she has placed the blocks onto the floor, R reaches for the large hollow block that is sitting in front of her against the wall. She lifts it easily and turns to her blocks. She places the hollow block on top of several of the small squares that she has placed on the floor.

TAPE CUTS OFF

Tape comes back in. Several minutes later...
It appears that R has constructed a relatively elaborate structure. She has laid the other large hollow block perpendicular on top of the first. On top of that, she has placed two long blocks, the first perpendicular to the hollow block, the second perpendicular to the first.

Next to that structure, R has constructed another relatively elaborate structure. She has placed four large cylinders into a square configuration and has laid a long block on top of two of them (through the middle of the square formed by the cylinders). The other two cylinders each have a unit block on top of them. R has placed a long block on top of these two unit blocks, across the first long block, so that the two cross in the middle. On top of the structure are four large cylinders in a row.

R continues to build. She is talking to herself quietly while she moves a unit block around. I hear her say, "There."

R stands and chooses a double unit block from the shelf. She places this block on top of the four cylinders at the top of her structure. Then she places another double unit block on one side of the long block and another on the opposite side. The structure is symmetrical. R stands after placing this last block and claps twice. Then she walks quickly to the block shelf, chooses two double unit blocks, walks to the other structure, and places the two blocks on the long block there (as she did just before). This structure is also symmetrical. R pauses with her hands on the blocks and moves them slightly. Then she stands and claps twice, quietly.

R moves back to the shelf and takes a unit block off. She walks back to the hollow block structure and bends. She places the block on the very end of the double unit block that she just put down. It wobbles. She holds it loosely and moves it so that a bit more of
it is on the block. It balances and R claps her hands together as she stands up straight. She continues to look down at the block for a moment.

R stands.

I ask, "R, how do you feel?"

R quietly, "Good." She smiles slightly and then turns back to the shelf. As she is loading her arms with small triangles, I ask, "Will you tell me about your building?" R shakes her head "no."

Me: "No? How come?" R is placing the triangles on top of the structure containing the cylinders.

R adamantly, "It's not ready yet."

Me: "Oh, it's not ready yet. Okay." R has placed two triangles on the top of the structure and has placed one triangle inverted between them. She chooses another two triangles from the shelf and begins to place them down. She turns one sideways on top of the structure.

Me: "You know what, R? I'm gonna have H come and build and then you can come back." R removes her last two blocks quickly from the structure and nods. She turns and starts to put the blocks back onto the shelf.

Me: "You can add those last blocks if you want."

R has her back to me. She is putting the blocks back. She says, "I know, but they won't fit."

Me: "Oh, okay."

R finishes putting the blocks away and then turns from the shelf. She pauses and looks at her structure.
Me: "Alright, thanks, R I'll call you back in five minutes, 'kay?" R nods and walks/skips quickly past me and out of the block area.

**Group observation: EB, H, and R.**
**January 5, 2012.**
**Length of observation: 20 minutes, 31 seconds.**

R and EB are near the building structure that R has placed people on.

H says to R, “Let’s go down! We can’t go down!” R does not look at H.

The children are building separately. Parallel play. EB has turned two hollow blocks on end in the far corner of the block area. R is kneeling next to H; she is manipulating four quarter-circle blocks, putting them together to create a full circle.

H asks out loud, “How can we go down?” He is looking at the building with the people on it as he says this. Neither EB nor R answer him.

R gets up from her position on the floor and moves to the shelf. H moves toward her blocks and makes them into a circle.

R has chosen a long block from the shelf and walks over to EB. She says, “I’ll help you.” EB is moving part of his structure and replies, “No, I don’t want help.” R says, “We have to work together,” and she stands very near to EB’s structure as he adjusts it. She waits a moment and then asks, “Where can this go?” EB replies, “It can go…here!” He points.

H is still kneeling on the floor near the building with the people. He pushes the quarter circle blocks toward it, slides close to it, and then stands.

EB and R move to the block shelf together and EB moves back toward their structure with another long block. He says he is making a jail; R says, “Me too. With you, right?”
EB lays a block down. R asks where she can put hers, and EB directs her to put it on top of his. H is standing and appears to be watching the other two children.

H moves and stands with his hands on the top of EB and R’s structure. They are on their knees on one side of the structure; H stands, looking down at them and smiling, on the other side.

R says, “No, this is only our job,” when H pats the top of the structure. EB reaches up quickly and puts his hands on top of the block possessively. H pulls his hands away and looks toward the other side of the room. He walks away a bit; EB takes his hands away. H turns back, and EB puts his hands back quickly, as if protecting his structure.

R brings several long blocks from the shelf toward EB. She encourages him to take from the pile, and he begins stacking the blocks up horizontally against the hollow blocks that he had placed upright.

EB points toward the other, smaller block shelf and then walks on his knees to get more long blocks. H stands still, looking toward EB.

R holds up two double unit blocks toward EB. He says, “No, we need the big ones.” R shrugs and puts the double unit blocks back on the shelf. EB places another long block on their stack.

H sits back down near the building with the people on it. He smiles and tenses up his body, and then relaxes.

EB holds up an animal toward R and says, “Maybe we can use these?” R and EB continue building together. They are talking to each other and making suggestions about where to place various animals. H looks toward them as they talk; he is quiet.
H stands up and walks toward R and EB. He says, “It has to go on the train.” EB asks a clarifying questions, H replies [this is unintelligible], and EB replies, “No, no, on top of the jail [unintelligible].” R continues building. She and EB talk a bit while she continues to get blocks from the shelf and he looks through a bin for other animals. H walks out of the block area and tries to talk to Shana. She redirects him.

EB sings out, “I’m trying to find a penguin. Trying to find a penguin!” R asks him if he can move, and touches his shoulders to guide him out of her way. He moves a bit, helps her to get another block off of the shelf, and then takes one himself and turns back toward the structure.

H says to R and EB, “We need trains to take them home.” EB responds, saying something about trains, and H says, “We need to take the real train.” EB and R continue to build while H speaks to them.

H moves to the block shelf and takes a long block from it. He moves toward the structure where R is placing a long block on top of the stack. The stack of long blocks is almost as tall as the two upright hollow blocks. EB says to R, “Um, you can fill this side up with blocks.” R places her block on top of the stack. They have built a “wall” up one side of the two upright hollow blocks.

H places another long block on top of the stack. He pats the top of it.

EB encourages R to “feel this side.” He repeats himself while patting the stack of blocks, and R comes over to where he is standing. He tells her to “feel this side, with your hand.” She pats the blocks in the same way that he has been doing. Then he moves toward the shelf, and she bends to place long blocks on the opposite side of the structure. H is standing near the block shelf looking toward them.
H says something unintelligible, and R says, “Let’s get to work, guys!” She is still stacking. EB looks through the bins on the block shelf, and H hops back and forth a bit. R sings something and claps her hands. H moves to get another block from the block shelf and repeats, “Bam bam, bam bam,” over and over.

R runs out of the block area (to the bathroom?) and EB and H play on the side of their “wall” farthest from me (I cannot see them). EB says something about “going to jail.” Pretend play.

H gets another long block. He is repeating, “Bam bam bam bam,” over and over. EB is rummaging through the animal bin…

R comes back. She is singing quietly.

H is still stacking blocks on the other side of the structure. EB picks up a big animal—a cow—and says in a deep voice, “Hey, where’s my baby?” as he moves with it to look through the bins some more.

R and H both move toward the shelf. R reaches into one of the bins. H bends and reaches as if to take another block, but there is no room for him. He sits back and stares toward the other building structure. EB is talking to R as he continues to look for the baby animals.

H moves back to the “jail” structure. He places his foot on the half-built wall and pulls the stack down with his foot. He smiles absentmindedly while doing this. Then he sits on the floor and pushes the pile of blocks to the side.

R stands up with two long blocks in her arms and looks toward H and the pile. “H!” she exclaims. She seems upset. “H!” she whines. H responds, “But there’s not enough for the other side.” R leans toward him while he is talking. H stands and walks
around the structure; R puts her blocks down and reaches to pull the blocks that H has knocked down toward her.

EB is playing with animal figures on top of the block shelf.

I sit down near the children. “Wow, you guys. That is one big building.” EB looks up and smiles broadly. R continues to build. H looks toward me and says, “The real train is going to pick them up.”

“The real train is going to pick who up?” I ask.

H moves toward the structure and points. “The penguins.” He gestures toward the penguins on top of the structure. EB turns to look at H as H is talking. He stands and brings the animals that he is holding over to the structure. EB says, “And these guys, too.”

“Did you all build that together?” I ask.

“Yeah,” says EB. “Yep,” says H. R continues to build. She seems very focused on stacking the blocks back up on the other side of the structure.

“And what is it?” I ask.

R looks up and says, “A train station.”

“It’s a train station, huh?” I ask. R continues to build. EB is playing with two animal figures on top of the structure, and H kneels at the bottom with another animal.

“H, tell me about the parts of your train station.” H looks toward me. He pauses and then stands. EB is talking loudly, apparently to himself. H says, “The other trains are coming…are coming out of there.”

“The other trains are coming out of there?” I say.
“Yeah. They’re getting out of the…of that train station.” H points toward the block shelf as he says this.

R rushes toward the shelf and reaches into a bin for an animal. I say, “You know what? We’re just gonna use the…I know you took out some of the animals, and that’s okay, but we’re just gonna use the blocks now. Not the trains and stuff.” I pause. R puts the animal back into the bin. I say, “If you want to make trains out of the blocks, I bet you could figure out a way to do that.”

R asks, “How?” I respond, “You have to think!”

R exclaims, “Oh!” and reaches for a small cylinder. “This can be the caboose.” She holds it up to me. I shrug and say encouragingly, “Talk to your friends.” R walks toward EB and H at the structure and holds up the block. I say, “You can make up trains out of the blocks. There’s a lot of shapes.” I get up and walk away from the block area.

EB takes a big polar bear and a small polar bear out of the animal bin, and R wheels a wooden airplane from its place on the floor toward the structure. She talks to EB and H. The three children move toward the place in the block area where the wooden toys are kept, and H wheels a truck toward their structure. EB wheels two trucks toward the structure. They are talking to each other.

R asks H and EB if they can put all of the animals that are on top of the structure on top of the large block shelf.

I come back to the block area. I say, “Hey, this group in here, we’re just using blocks. Not the trucks and stuff. Just blocks.” The children stop and look toward me while I am speaking. I say, “You can make things out of blocks that are like cars…” H interrupts, “But…we’re supposed to…”
I say, “Here. Look. I’m going to show you something.” I walk into the block area and take a unit block from the shelf. H watches from his position near the structure; EB and R sit near me on the floor. “Come here. If you wanted a car, do you think you could pretend that was a car?” R says, “Yep,” and takes the block from me. She pushes it across the floor as if it were a car. EB walks on his knees toward the structure and looks at R.

H exclaims, “Oh no!” And then, “We can’t go past the train station.” He has pushed his wooden truck up against the wall of the structure. EB is pushing his truck around the back of the structure and making horn sounds.

I say, “R, tell you friends what I just said.”

R stands and says, “That could be the car. Or this!” R holds a double unit block up near the structure and then walks toward H.

I say, “H, R has an idea for a way you could use a block to make a car.” R is holding the block out and walking toward H and EB. EB and H are wheeling their trucks back to the place where they are kept.

R says, “We can use THIS for the train.”

H says loudly, “Or we can make more than one!” H walks around the back of the structure—he and R are both standing on that side. R talks to H about what to do with the animals. EB pushes a block toward the structure and uses a deep voice—first, he pretends to be the car speaking and then he pretends to be the animals responding.

H knocks over the “wall” on the side that he and R are standing on. R whines, “No, H! H, no!” She looks up and says, “Shana! Look! H’s making this.” EB comes to stand near H and R—he has his hand on the top of the structure and is looking down at the knocked-over blocks. I respond, “Talk to H.”
H is talking: “But they can’t get up too high.” R says, “Well, you don’t have to.”

H moves away from the structure and stands near the block shelf. EB bends down and touches the pile and then stands and says to H, “We don’t like that, H.”

H says something to EB. EB responds, “No, it’s not going to collapse.” H says, “No, it’s, it’s not collapsing, it’s [unintelligible].”

EB says adamantly, “No, it’s not gonna collapse!” He bends and kneels at the back of the structure near the pile. H walks to the other side of the structure where R is playing quietly with some of the animals and puts his foot up as if to step on the blocks. He walks away, back to the front of the structure. He pulls and pushes a bit on the top of the “wall” at the front of the structure and says loudly, “It’s gonna collapse!”

EB gets up a bit, looks at H, and says, “H! No, it’s not gonna collapse.” H bends over the wall toward EB, looks him in the face, and yells, “Ay yai yai!” EB has his hand on the top of the wall. H backs away from the wall and around the structure. He and EB appear to peer into the other side of the structure.

R is playing on her own quietly near the structure.

H sits on the floor at the front of the structure and pick up a polar bear. He “walks” the polar bear up the front wall. He says, “It has…it’s gonna be closed.”

H says to EB, “How can we [unintelligible]?” EB responses, but his response is unintelligible. H pushes against the wall with his polar bear and says, “I need to collapse it.”

EB responds, “No, I don’t want to collapse it.” He moves around to the front of the structure and plays with a baby polar bear on top of it. R is playing with an animal on the other building structure.
H says to EB, “But I want to make a [unintelligible].” EB responds, “No.” H moves back to the structure and pushes against it. He is smiling. EB says, more impatiently, “H! No.” He holds the structure with two hands. He and H talk more quietly, and H moves around the structure. EB does not take his hands away.

R talks H on the back and says, “Guys. Let me show you something. Come over to the computer. Come over to the computer.” She gestures from the boys to the keyboard on top of the bookshelf. She is typing. The boys pause; H stands and then moves back toward the structure. EB moves closer to R and then stands and walks back toward the structure.

R comes rushing to EB and says, “Look!” She points and says something unintelligible, and then says, “We have to get them out of there!” She touches EB to get his attention (and to involve him in her play). EB leans toward her and says something, but then he moves back toward the structure where H is playing. EB seems to be protecting the structure.

H is playing with an animal against the front wall of the structure. He says, “I need to push a hole…to rescue…the polar bear.” R is rushing back and forth from the block shelf, telling EB to look. She is very animated. EB is standing at the front wall of the structure with two hands on top of it, while H plays on the bottom.

EB calls out to me. “Diana? Diana?” I respond, “Yes?” EB says, “H is trying to knock this down.” H looks up at me, smiling. R pauses in her play at the keyboard.

“What’s wrong” I ask.

“H’s trying to knock this down,” says EB.

“And find the polar bear,” says H.
“H, can I tell you something about building with the blocks? We don’t knock buildings down in the blocks. If we want to take something apart, you need to take every block off. One at a time.” H responds quietly [intelligible]; he walks an animal up the side of the wall. EB is playing with an animal on top of the structure. I say, “We don’t knock down buildings, because that makes people feel bad. And it’s also very loud.” H does not seem to respond. R moves to the structure and begins to pick up the pile of blocks that is still lying behind the structure. EB plays with an animal a bit farther away from the structure.

I say, “H, I will know that you heard what I said if you look at my face.” H does not respond; he is playing behind the structure so that he cannot see me. I move near him and bend down so that I am looking into his face: “H, did you hear what I said about knocking buildings down?” H begins to talk about something else. I say, “No, I want you to answer my question. Did you hear what I said about that?” H looks at me. I say again, “We don’t knock buildings down. Okay?”

H says, “I almost knocked it down. Then I stopped…”

I put my hand on the building. “Is it wobbly?” H stands to look with me. I say, “No, it’s pretty sturdy.” H walks away from me toward R and EB, who are playing and building. I say again, to H, “It’s very sturdy. If you knocked this down, it would be on purpose, not on accident.” I look at H while I say this. He responds, “Yeah.”

I get up and walk away from the structure. H stands with his hands on the top of it for a moment and then walks to the block shelf. He takes the big polar bear and begins to play with it on the top of the structure.
R is playing with the keyboard. EB is at her feet, playing with different animals and giving them different voices, etc. R and EB alternate between talking and parallel play. H plays quietly with a polar bear on the structure. He replaces a block at the back of the structure. He talks to himself.

I remind EB and R that block building happens in the block area, not on top of the shelf. EB says, “Okay,” and the two move their play to the floor of the block area. Then they move back to the top of the shelf.

H looks up from the floor behind the structure and says loudly, “EB and R!” They do not respond. He says again, “EB and R!” He begins to say it a third time when I come back. I say, “Okay, guys, I told you this one time already, that if you want to play with the animals and the blocks, you need to stay in the block area, not on top of the shelf.” I pat the shelf as I say this. R and EB turn and move to the floor.

H asks, “R! How can we get this…how can we get…across?” He points to something behind the structure. R bends to kneel near him. EB is playing in the front of the structure with several small animals.

R says, “Don’t worry, I’ll [unintelligible].”

H says, “We’re trying to get to [unintelligible].”

R asks, “That side?” She places an animal inside of the structure. “Okay.” Then she says, “I’ll move the top one so you can jump off.” She stands and removes a long block from the top of the structure. “You can jump!” H moves a cow quickly to the top of the structure, making it “jump.”
As this is happening, EB says, “Um, I think I need help…for this.” He turns to look up at me. I say, “Talk to your friends, EB.” EB doesn’t talk to R or H and continues to play.

H and R are playing with and around the structure. H holds the sides of the structure (the two upright hollow blocks) and says, “It’s gonna collapse!” R replaces the long block that she had removed. H grabs it and begins to bring it toward his body, but R says, “No!” and takes it back. H says, “If you take it away, then look what happens. It’s collapses.” He wiggles the sides of the structure.

EB is playing with small animals next to the structure. He is giving them voices. R kneels to face him and plays with the animals as well; she gives one of them a voice. H has picked up a long block and is hitting the structure with it. I say, “H, are you using those safely?”

R rushes over with some animals and drops them into the structure. H pauses. He looks back toward me and says, “They’re in trouble.” I say, “You need to make sure that that doesn’t get knocked over.” R removes one of the top blocks and begins to play with a small animal on the structure. EB comes over with an animal; the two are playing together. H attempts to lean a long block against the structure. He turns to me and says, “I can’t get it.”

R is leaning over and into the structure, reaching for an animal. Her body moves one of the standing hollow blocks in such a way that the wall seems to be unstable. I say, “R, look what’s happening.” She stands, but the blocks remain precariously stacked and seemingly unstable. I say firmly, “Wait,” and move quickly to stabilize the structure.

While I am stabilizing the blocks, I say, “Your friend EB is over here, and if you knock
these blocks over, they’re all going to fall on him. That’s why I told you to wait. You need to be careful with your body.” H starts to talk about bad guys, but I interrupt him.

“H, did you hear what I said to R? Stand up and look over here.” H stands. “Do you see who’s sitting here? See?” I point to EB on the opposite side of the structure. “If these fall, what’s going to happen?”

H says quietly, “He’s gonna get hurt.”

I say, “Yeah.” I pause, and then say, “So make sure these don’t fall. You have to take care of your friends.”

H says, “But I’m gonna fall off the balance beam.” He is sitting near the long block that he had tried to lean onto the structure previously. I walk away. He repeats himself, but it is unclear to whom he is addressing his statement. R and EB are playing on the other side of the structure. R is putting on a baby voice as she plays with one of the baby animals.

H turns to me and says, “I’m gonna fall off the balance… I don’t wanna fall off the balance beam. Watch this.” He stands and walks to the bin containing the animals. He takes a few moments and then chooses a pig.

EB and R are playing with each other with the animals. EB is using a deep voice for one of the animals. They are hopping the animals up and down the shelves; their bodies are close. R leans into EB and puts her head on his shoulder as they play.

H walks his pig up and down the length of the leaning long block.

I say, “R, EB, and H, it’s your guys’ turn to go to the arts and crafts table. So why don’t you look at your building and make sure it looks how you want it to look.” R starts to rush out of the block area. H stands, and EB stands and drops a number of animals into
a pile on the floor. I say, “Put your ani…don’t just leave your animals in a pile. Nope.
You either need to put them away, or you can put them on your building in a nice way.”
EB lifts several animals from the floor and lines them up on top of the structure.

EB asks, “Are, are, are we gonna come back?” I say, “Probably not. No.”

**Group observation: EB, H, and R.**
**March 1, 2012, 1:15 p.m.**
**Length of observation: 8 minutes, 21 seconds.**

EB and R come running into the block area. H appears to be excited: he is hopping up and down and smiling.

EB and R run immediately to the block shelf.

H: "Let's build, you two."

EB: "Yep!"

Me: "H, you might want to tell them about the little problem you had with those blocks." H is holding an arch in his right hand. He pauses, standing near the structure that he just rebuilt. Then he walks a bit to the side of the structure. He is standing across from R, who is just about to place a block down.

H: "I...the little...one of these little blocks was not stable." H points to the structure when he says "little" and gestures with his arms (as if he is wiggling something violently) when he says "not stable." R is silent and still as she looks down at the structure H is talking about. EB looks at H as he is speaking; EB continues to build but appears to be listening.

Me: "R, do you notice something different about that part of the building?" R nods. "H had a little problem." R looks up at me and then back to the structure; H begins
to point. I say, "And it feel over a little bit." EB is still now as well and is looking at the part of the structure we are talking about.

H: "But one of these little blocks is not stable." He gestures again. R is looking with her hands on her hips. H continues, "Because I builded it, and it was not stable." EB moves and bends to place a block on part of the structure that he built initially (the zoo/enclosure).

R has moved to one side of the cylinder structure. She sits on her knees there. She asks H in a very quiet voice, "Which one was not stable?" And then again, a bit louder, "Which one was not stable?"

H points and says, "Um, this one was not stable." R rises to her knees and leans forward; she points and asks, "This one?"

H: "Yes. Um, no. This..." He points.

R says, "Oh." Then she shifts a block and says, "That's okay." EB, who has been building on the zoo/enclosure, stands and walks to a place near the hollow block structure. He reaches down to where R is shifting the block and moves one next to it.

R says, "That's fine. Done." She stands. EB leans back and stands. H walks around the structure past R with a block in his hand.

R says aloud, "I wish that didn't knock over." Neither of the other two children respond verbally; both H and R are building independently. I call R over to help her with her pants.

R rushes back into the block area and puts a block down onto the zoo structure. EB is building in that same area and he says something to her. She responds, "Yeah!" and then stands and walks to the block shelf. She walks past H on her way there; EB is at the
other end of the shelf, leaning into it for a block. She says something to them, "[Unintelligible], guys," and then stomps her foot, squeals, and says, "Ah! My shoes untied!" She giggles dramatically. EB looks up and smiles and says, "I didn't do that." H continues to build quietly.

EB takes a block from the shelf. He has two arches lined up on the floor; the third is in his hand. He places it down on the floor with the others, and, as he stands, R walks past him.

R: "Diana! Can you please tie my shoe?" She runs over to me, hopping over EB's arches on the floor.

H walks over to where EB has been building. He bends his knees and picks up a small triangle from the enclosure structure. As he is looking at it, he lowers his body so that he is sitting on the arches EB has put on the floor. The arches slip to the side and fall; they are now scattered on the floor. H appears not to notice this—he looks toward the block shelf and seems distracted. EB looks towards H as H rises and walks away, and EB walks over to the arches, bends, and puts them back the way that they were.

H walks to the block shelf and takes a long butter stick from the shelf. He says, "This makes it very..." It unclear to whom he is speaking.

When I finish tying R's shoe, she rushes over to EB and adds two arches (she had been holding them) to his structure. EB stands and says, "This is a [unintelligible]." He walks to the block shelf.

H is holding the long butter stick and a unit block together near the block shelf. He says, "This is a [unintelligible]." EB appears to watch him; he shifts his weight so that he moves closer to H. Then he moves back, stops and stands, and looks toward R.
R is bending her body over the aligned arches and peering into the tunnel that they form. She shifts them a bit and then leans back onto her heels. She claps her hands and then rises and skips to the shelf.

EB reaches into the block shelf, chooses a block, and walks toward where R was working. He says, "Now, this is gonna block," as he places a block into the space of the arch. He rises and says, "There we go." He walks to the block shelf. There he chooses another block, walks back to the arches, and says, "Let's block the baby." EB blocks the "tunnel" entrance on the other side.

H has been standing near the shelf. He appears to be watching both R and H.

R places a flat scalene triangle on the floor, stands, and claps her hands. As she walks to the block shelf, she says proudly, "Isn't this a whole state building?!" She turns back to the structures and smiles broadly. Her arms are out at her sides and her stance is wide.

EB stands across from her and smiles. He says, "Yeah."

R smacks her arms against her legs and continues smiling. She says, "Nice work, guys!"

EB says, "Yeah!" as he walks to the shelf. R says, "Yeah!" and skips around in the front of the block area. H is kneeling near the block shelf, placing blocks onto the structure.

R asks if she can use the railroad signs. I say yes.

The children continue to build. Each is building on a separate part of the structure, in a different corner of the block area.
H places two more triangles on top of the cylinder structure. He stands up quickly, runs a bit away from the structure, claps his hands together, and smiles. He turns back to look at the structure.

Me: "H. You look happy. Did you figure something out?" H stands near the structure, looking down at it and smiling.

H: "Yes." Big smile at me.

Me: "What did you figure out?"

H bends forward and points briefly at the structure. He trips a bit and falls forward but catches himself and falls back onto his heels. He sits near the structure. H begins to talk about something but his speech is unintelligible from where I am sitting. As he is speaking, R walks over, stands in front of him, looks down, and says, "Wow! Good work, H!" H continues to talk—he is talking about something jumping off of one part of the building and landing...

R walks back over to where she has been building on and near the zoo/enclosure. EB comes to stand near her. He takes a sign from the bin and says, "I'm putting all of the signs here." He adds a sign to the structure. He says something quietly to R. They are sitting very close to each other.

H continues to talk quietly to himself. He hops up from the floor and trots over to me. He is smiling. He says, "Not a closed one." Then he turns and stands near R and EB. He says, "Because a closed one [unintelligible]." R and EB continue to build together—they are lining up signs against the wall of the zoo/enclosure.

H trots over to the block shelf. He stands for a moment looking into the block area.
Me: "Keep building, H." H moves a bit to his right and then moves with intention to take a block from the shelf. He chooses a flat scalene triangle and walks toward where R and EB are building. R is playing with two signs on the floor; she and H almost bump into each other, but they do not. H walks to the lined up arches on the floor and adds his triangle to the top of them. He bends and squats to do so and then he hops up and trots toward the block shelf.

EB has two handfuls of railroad signs. He bends and begins to place them with the others against the wall of the enclosure structure.

R is adding signs to the cylinder structure. She talks quietly to herself. The three children are all building at separate corners of the block area.

R adds two signs to the top of H's triangle structure (on top of the cylinder structure). She stands up straight and claps her hands together and then jogs to the other side of the enclosure structure where EB is building. She takes a wooden tree, jogs back to the area where she was building, places the tree in between the two signs, stands and claps. She is singing softly and smiling.

H sits quietly. He seems lost in thought or distracted; he also appears to be watching R.

EB stands and asks me if he can use the animals. I say okay, and R, who has skipped over to the area in which EB is building, says, "Thanks." H has also walked to this area. R chooses an animal from the bin and holds it up in H's face.

EB walks over to the enclosure, bends, and says, "I'm gonna put this in my zoo." R turns, bends and stretches, and places an animal in the zoo. She says, "I'm gonna put this in my zoo, too."
H, who has walked back to the cylinder structure with a flat triangle, announces, "I'm gonna put this in...on my tower."

R looks up and across the structures toward H. She says, "That's my tower, actually." And then, "I builded it." H does not respond verbally and R continues to build.

EB says, "Let's put the cows together," and bends to put animals into the enclosure. R asks EB, "Do you need the horsies?"

EB: "Yeah." After a pause: "I need every animal."

R bends. She is holding some horses in her hands. She says something to EB that I cannot hear. She sets the animals down inside the enclosure, stands and spins around, and asks me, "Now do I go to painting?"

Me: "Hm?"

R: "Now do I go paint?"

Me: "Not yet. A couple more minutes in blocks."

R turns back to the block area. EB is building intently, adding animals to the enclosure. H is playing with a sign on the cylinder structure. R takes a big step toward the shelf and chooses a block.

Me: "You guys have, like, one more minute."

EB: "One more minute?" He leans back on his heels and looks down at his work. Then he stands and walks to the shelf that contains the animal bins.

R adds a block to the enclosure structure and then stands. She claps her hands together and says, "Build! Build, build, build, guys!"

H announces, "The traffic...this traffic light..." He points to his structure. He does not seem to be addressing anyone in particular.
R runs to the block shelf and back to the structure, and then back to the shelf and back to the structure.

Me: "R, R, calm your body down."

EB: "Let's put the lion!" He is adding animals to the enclosure structure.

R continues to jog slowly back and forth from the shelf to the arches on the floor. She is adding blocks one at a time to the structure. She breathes dramatically, as if she is out of breath from working so quickly.

H continues to build. He announces, "The traffic light is red."

Me: "Alright, you guys. Everybody put your last block on. And then I would really love it if you guys could talk about what this building is."

R walks to the block shelf and chooses two blocks. She says, "I just have to put two blocks."

EB is peering into the animal bin. I say, "EB, put your last thing down."

R places her last blocks onto the structure, takes a large step backward, opens her arms wide, and says, "Isn't this so cute?! Yeah, baby!" She claps her hands together. She smiles broadly.

Me: "Alright, H. That's your last one. EB, that's your last one." The two are very focused and have been building.

Me: "Will you guys talk about what this is??

R walks around all of the structure and holds out her hand. She says, "This is an animal zoo. With an Empire State Building."

Me: "An animal zoo with an Empire State Building?" R nods. EB is still adjusting some of the animals inside the enclosure. H follows R a bit; his back is to me.
Me: "What else do you guys think?" H walks over to the cylinder structure and kneels. He is looking down at it and touches it lightly with his hand.

R holds out her hand again, gesturing toward the structures. She says, "Um, we're trying to do that [unintelligible]." She gestures to the cylinder structure and to the smaller arch structure.

Me: "H, did you want to say anything?" H looks up.

H: "And this, and this sign, [unintelligible]...when dis sign has...the red sign is the one that, that has...that's the one that is the...the yellow is the one that's flashing. And the green is the one that's [unintelligible]." EB has been looking toward H as he speaks. When H finishes speaking, EB walks out of the block area.

Me: "Wait! I want to hear what you think about your building."

EB walks back into the block area. He is swinging his arms back and forth next to his body. He says, "Uh, uh, um, it's just animals in it."

Me: "There's just animals in it."

EB: "A lot of animals." EB continues to swing his arms back and forth. He walks out of the block area. H continues to sit near the cylinder structure. He seems lost in thought.

Me: "Alright, H, you're done!" H hops up.

**Individual observation: S.**

**November 29, 2011, 12:54 p.m.**

**Length of observation: 4 minutes, 46 seconds.**

D: "Hi, S!"

S: "Hi, Diana!" She looks up from two blocks she is holding as she says this. She smiles.
D: "You get five minutes, by yourself."

S looks across the room toward the sound of The teacher's voice. The teacher is asking the other children where they would like to play.

S (to me): "Who's going next?"

D: "EK." S smiles and kneels down to the floor.

S: "And then I, and then we're gonna all work together." S says this matter-of-factly; as she speaks, she holds up two of the three isosceles triangles that she is holding.

D: "Yeah! You remembered!" S smiles and then looks down at her blocks. I speak to The teacher across the room: "She's gonna go last."

S (to me): "Who's gonna go last?" Her voice is quiet and questioning.

D: "I goes last."

S has built a small structure with three small triangles.

S: "Look!" She says this brightly, and moves her body back a bit from her structure as she does. Then she spins away from the structure toward the block shelf. She chooses another triangle from the shelf and places it carefully on top of the little structure that she has made. Now it is a triangle made up of four smaller triangles.

S walks on her knees to the block shelf and chooses a double unit block. She walks back to her structure, removes the top triangle, and attempts to place the double unit block in a vertical position on top of the structure. She looks down at her structure while she does this and seems to weigh the block in her hands as she moves it carefully from side to side. Then she picks the block up, places it down decisively next to the structure, picks up the middle triangle, and places it on top of the vertical double unit
block. She moves two of the triangles so that they are next to the double unit block, touching it. The structure is symmetrical.

S turns and moves a little toward the shelf. She chooses two double unit blocks and places them on the floor, to the front and back of the double unit block. Then she takes the triangle from the floor and places it near the vertical block on top of the double unit that she has placed on the floor. She turns and takes a small triangle from the shelf and places it on the corresponding spot on the other side of the structure. The structure is symmetrical. S moves with intention and she appears to be very focused. She does not talk to me and looks at the blocks and at her structure.

S walks on her knees to the block shelf that is farthest from me (at the far end of the block area). She chooses a square and a scalene triangles and scoots her way back to the structure. She places these down, and then turns quickly and walks on her knees back to the shelf. She chooses the same two types of blocks, walks on her knees back to the structure, and places them on the corresponding side of the structure. The structure is completely symmetrical. S moves with intention; she uses two hands when positioning blocks and she lines up the edges of the blocks precisely.

S up and back from her structure, turns her face toward me, and beams. She says, "Look what I made!" and points toward the structure.

D: "Tell me what you made!" S stands up, on the side of her structure farthest from me, and points down at her building. Her body is square to me; she shifts back and forth from foot to foot as she speaks.

S: "I made a, a building that, that you can climb up the Side-" S points to a triangle with her toe, "-and then you go, go up the elevator." S points down to the vertical
double unit block as she says "elevator" and gestures upward as she talks about going up it. She raises her finger up in the air as she stands to full height after describing her building and she smiles broadly while looking toward me.

D: "Whoa! Cool."

S turns abruptly and walks to the shelf. She chooses two quarter circles and then turns to me and says, "I'm gonna make a, a big river with a boat." She holds up one of the blocks as she says "boat."

D: "A river with some boats?!" My voice conveys the fact that I think this is a great idea.

S: "Yeah." S's voice is quiet; she has walked to the shelf and is peering into it.

D: "Where did you get that idea?" S is loading her arms with various types of blocks. She turns her face up and her body toward me a bit when she speaks.

S: "Um, um, I just wanted to make a big house, a river, and some boats." S's face and body are turned toward the shelf again. She is still choosing blocks, one by one, and loading up her arms.

S walks on her knees from the shelf to her structure. Her arms are full of blocks. She chooses two double units from her arms and lays them on the floor. She stands up and back quickly and looks toward the other part of the classroom, where some of the children are playing loudly. Her face is neutral; she appears to be interested in their play. Then she turns abruptly and walks to the block shelf. She pulls two more double unit blocks off of the shelf, puts one into her arm, and the other she carries in her hand, and then places on the floor. S's movements are intentional and focused; though she moves
fluidly and in a coordinated way, there is something about her energy that seems high (as if she is a little vibrating string on a guitar).

As she lays the two double unit blocks on the floor next to the two she has already placed, S says very quietly, "Okay, now I got a big stream-" here she looks up toward me quickly and back down, "-and now I got some boats!" She places the two quarter circles that she has been carrying down on top of the "stream" as she says this. S continues talking, quietly as if to herself, "...and now there's gonna be...I'm gonna move the river a little bit-" here S moves her body around her "stream" structure and pushes it toward her other structure so that it Sides closer to it. She repositions the "stream" so that it is very close to the other structure-the building. They are almost touching. When her "stream" knocks against one of the small triangles and moves it, S repositions it precisely. She also seems to take care to align the blocks that make up the river. Then she sits back abruptly, looks toward her structure, and then leans forward quickly and moves the "boats" (the two quarter circles) around on the "stream." Then she sits back again, turns toward me, and, smiling, points toward her structure. She does not say anything, but her smile is wide and her eyes seem to be twinkling. She moves her arm in a tight circular motion, gesturing toward the structure.

D: "Are those your boats?"

S: "Yeah!" She says this almost shyly, but her smile is very broad. S stands up and says, as she bends down again toward the structure, "And this thing is a stream." She turns her head to look at me while she speaks; she puts her hand on the "stream" as she talks. Then she stands up abruptly and takes a few steps backward toward the far end of the block area.
D: "That's the stream?"

S: "Yeah." S smiles at me and makes a big, sweeping, circular motion in front of her body with her right arm. Then she turns and walks toward the shelf. She chooses a block off of the shelf.

S: "Hey! Look what I found in the triangles." S holds up an L-shaped block in front of her face and in my direction. Her brow is furrowed and her mouth is drawn down very slightly.

D: "That's not a triangle!" I intend my tone and inflection to reflect her puzzlement. S smiles slightly and walks toward me.

S: "That's an 'L'!" She holds it out toward me and walks forward a bit more. She is standing next to her structure.

D: "It's an 'L'!"

S half sits, half squats next to her structure. She says quietly, "It's an 'L' block," and then, more loudly, "Hey!" She places the "L" block down; it is now part of her structure. She says quietly, "But I still needed it." She turns toward the block shelf, lifts a long block off of the shelf with her left hand, and says, "A BIG thing...as the big elevator." She looks up towards me. Then she says, "This is how high it goes." S has placed the long block on its end; it is standing next to her structure and parallel to the double unit block that is the elevator.

S pauses, and then takes the triangle off of her "elevator." She turns toward the block shelf while she holds this block in her hand; she is talking: "I need just a little bit of a bigger block. Right?" She chooses another double unit block off of the shelf, turns back to her structure, and begins to place the block vertically on top of the other vertical
double unit. She says very quietly, "Just a little bit..." She holds the block in the air next to the vertical long block and looks at them. Then she turns back to the shelf with the double unit in her hand. She puts it back on the shelf.

S chooses a unit block from the shelf and turns back to the structure. She opens and closes her mouth, as if she is talking. She places the unit block vertically on top of the double unit block. Then she turns and chooses another unit block.

D: "S, you have one more minute to build by yourself." S holds the block in the air in front of her and looks toward the other end of the classroom. Then she places the unit block on top of the other one she has just put down. She puts the small triangle back on top of this now-taller structure. In almost the same movement, she stands up and back from her structure and says quietly, "Okay." She looks toward me with the beginnings of a smile on her face.

She takes another step back, points toward the structure, shifts her weight onto her back foot, and says, "I'm finished."

D: "You're finished?"

S: "Yeah." She turns her body as if to walk toward the entrance to the block area.

D: "Do you want to tell me about it?"

S gestures toward the structure, making a sweeping motion over it. She says, pointing, "Um, this is a building, this is where you [unintelligible] to play, this is an elevator, and this is a stream with some boats." She stands straight up tall and looks toward me smiling.

D: "That's the stream with some boats?"
S: "Yeah." S's tone is shy; she is smiling and looking toward the other part of the classroom. She moves her hands by her sides, gathering and letting go of her dress. Then she walks out of the block area. She is beaming.

D: "Thanks, S!"

**Individual observation: S.**
**January 9, 2012, 1:19 p.m.**
**Length of observation: 6 minutes, 11 seconds**

S begins her building session by adding blocks to both structures. Then she begins to work on a separate structure near IH's. She constructs a small structure out of three small squares, stands to face me, and points down at them.

S: "I'm building, I'm building a tunnel." S's voice is strong and the quality of her speech is clear and articulate. I interrupt her as she is describing her structure because the children playing in the dramatic play area are very loud; I have to remind them to be quiet.

S continues to build while I am speaking to the other children. When I am finished, I ask S what she just said.

S: "Um, I'm build...I'm building a cool house." S continues to build. She adds some triangles-like those on top of IH's structure-to the top of EK's structure. As she chooses another block, the lights in the classroom are turned off, signaling that there are five more minutes until it will be time to clean up. S stops working and stands up straight and tall while she listens to another classmate sing "Five More Minutes." Toward the end of the song, she moves her hips in time to the beat of the song and smiles broadly. She lets out a little giggle and looks my way as the song ends; then she continues to build when the lights come back on.
S's movements are both quick and efficient and deliberate and careful, depending on whether she is moving between the shelf and the structures or placing blocks onto her construction. At one point, when S is placing a block into a gap in her structure, the structure falls. S looks down at the structure, straightens the parts of it that have not fallen, and then rebuilds. Her expression does not seem to change; she is focused and intent, but does not seem troubled that the building has fallen.

S looks up from her building and appears to listen to the teacher speaking with another child about his classroom job. She asks loudly, "Me?" and points her finger into her chest. Then she turns to me with a smile on her face and says, "Oh, silly me! I'm the dattendence." She smacks her open hand against the top of her head as if to gesture "silly me." She is smiling broadly.

S continues to build. She looks up and toward the sound of the teacher's voice, and then continues. S seems purposeful; she chooses blocks carefully and moves them around to different parts of the structure or to the other structures after seeming to consider them. She looks at the blocks after she has placed them as well. S's movements are slow; it is as if she is distracted by other things going on in the classroom, but also seems that she is really thinking about what she is building.

S chooses a wooden figure from the area where the children keep the wooden trucks and airplane. She holds it up to me and smiles while making eye contact. It seems like she is showing the figure to me before she uses it, as if she is asking for permission with this gesture. I infer this, and say, "Not the trucks, though. Just the people." S smiles, and begins to slide her figure up a ramp-like structure that she has built.
I ask, "What's happening?" S speaks quietly so that it is difficult for me to hear her, but she says something like, "This could be a tunnel," and begins to walk her figure through a small space between some of the blocks in her structure.

I say, in an interested voice, "Oh! It's a tunnel?" S continues to walk the figure through. The structure falls. S lets out a little laugh and then moves to rebuild the structure.

As she rebuilds the structure, she says, "I really know how to make cool buildings." I repeat what she has said, asking her if this is what she just said. She confirms, and continues to build. I tell her that I am glad she thinks so. She adds another little figure to her small structure, sits back on her heels, and seems to admire her building. She says it is a small house. She sits for a moment with her hands folded in her lap; she looks toward the sound of the teacher's voice in the dramatic play area. Her expression seems distracted, as if she is kind of staring off into space. After a moment, S begins to build again.

As she builds, S calls out to the teacher, "Hey! My birthday is August 14th!" She has overheard the teacher talking about her husband's birthday. S pauses with a figure in her hand as the teacher talks to her. I remind her that she has another minute, and S seems to refocus on her building.

After adding several more blocks, S looks up at me and says that she is finished. I ask her if she will tell me about what she has built.

S: "There's a little..." S lifts one of the blocks from one part of her structure as she is speaking and puts it onto a different part of the structure. It is as if she is thinking aloud and directing her action as she speaks. "There's a little path...there's a little path leading to
a little tunnel." S gets up as I am repeating what she has said. She confirms what she has said about her building, and I thank her for telling me about it. S smiles bashfully and looks down as she swings her arm close to her body. Then she walks out of the block area.

**Individual observation: S.**  
February 13, 2012, 1:18 p.m.  
Length of observation: 4 minutes, 15 seconds

S comes into the block area and walks straight to the block shelf.

S: "Um, um, after I's turn, um, are we gonna work all together?"

D: "Yeah." S smiles as she takes blocks from the shelf. She begins to build on the "wrong" side of the blue tape and I ask, "Remember what that blue tape is for?"

S says, "Oh yeah, silly me," quietly as she picks up the blocks she has placed down and moves them to EK's structure.

S places one double unit block upright on top of EK's horizontal long block and then places another upright on top of that. She places one with her left hand and one with her right—her movements are controlled and she is precise in her placement.

She says, "I need this to be so tall."

She gets a long butter stick from the shelf and places it on top of the tower. She asks in a silly voice, "Is this the size of a polar bear?" I laugh and say, "I don't know. It's almost as tall as you!" S smiles and puts a small triangle on top of the structure. She takes two steps back and looks at the structure. Then she smiles broadly and giggles.

She turns to the block shelf, chooses a small square and an scalene triangle, and holds them together. She looks at them for a moment, and then chooses another square and triangle. She holds one square and one triangle in each hand and turns back to the
block area. She settles herself on the floor and places a square and a triangle on one side of the tower structure and one square and one triangle on the other side of the tower-the structure is symmetrical.

She gets up easily from the floor and goes to the block shelf. S chooses another two squares and two triangles-she holds two blocks in each hand. She walks around the structure, bends, and sits. She places the squares and triangles in the middle of EK's flat platform so that the structure remains symmetrical.

S continues to build quietly and with intention. She chooses blocks from the shelf and places them onto her structure so that it remains symmetrical.

I tell S that she has another minute. She is lifting a large hollow block; she pauses as I talk, and then continues to place the block down as I say, "And I would love to know what you're building."

S. says, "Um, a castle."

Me: "A really tall castle?"

S: "Yeah." As she says this, she removes the top-most blocks from the tall tower structure. She says, "I'm gonna move these a little."

Me: "Why are you moving them?"

S: "Because I want to." S takes the tower apart, and then rebuilds it carefully a few inches from where it originally stood.

I am speaking with another student. S announces loudly, "Diana! I'm finished!"

Me: "You're finished? Will you tell me about it?"

S: "Um, it's a hu...it's a big tower." S looks at her structure and smiles; she gestures with her arm when she says "big."
S leaves the block area.

**Individual observation: EK.**  
November 29, 2011, 1:00 p.m.  
Length of observation: 5 minutes, 27 seconds.

EK has chosen a long block from the small shelf and is walking toward the structure that S just built. He looks at it and then away from it. His walk seems hesitant—he places his feet down carefully and slowly and his footsteps are quiet.

D: "EK! Did S tell you what she built?" My tone is positive and excited.

EK: "Yeah." EK carries the block with one hand and pushes up his long sleeve with the other. He looks at me as I speak and then down at the structure.

D: "What do you think?"

EK: "A building with a stream." EK smiles shyly as he says "stream." He also places the end of his long block down hard on one part of the stream. He looks up at me with his head bent slightly toward the floor.

D: "A stream and some boats!" EK nods slightly. "Now you have five minutes. You can build whatever you want." EK picks up the long block a bit and moves it with his left hand; he wiggles it back and forth a bit on the stream, and then leave it in place and walks to the block shelf. He puts his finger to the side of his head as he walks toward the shelf. EK turns back abruptly, puts his hand on the long block and pushes it while still holding it. He looks at the block, lifts it, walks with it around the structure, and places it on the floor on its end. He begins to lean the block toward the long block that S had placed earlier.

D: "Remember about the, the, um, the blue line." EK looks sideways up at me.
EK looks up at me with a questioning expression; his eyebrows are raised. He asks, "I can't build here?" When he says "here," EK raises and lowers his long block as if to clarify the word and the location.

D: "Yeah, you can't build on that side of it. 'Cause it gets in the way of the shelf." EK nods. He picks his block up again and walks around the part of the structure that is nearest to me. He tries to lean his block against the vertical long block that S put down. The standing block wobbles and EK picks his block back up and says, quietly, "Hm." He carries the block a bit farther around the structure and kneels with it on the floor. Carefully and deliberately, he places one end of the block on a small square that is on the structure that S built; the other end is on the floor. EK takes his hands from the blocks and turns his body to look toward the other part of the classroom where The teacher and some of the other children are talking. Then he turns back and looks down at the structure, stands by pushing up front the floor with one foot, and walks toward the shelf in a flat-footed way, smacking his feet on the floor.

He chooses a small square from the far end of the shelf, turns and walks directly back to his long block. He lifts the end that is on the floor carefully and slowly and slides the square underneath it. He has built a bridge structure with a slight incline (the end that is on S's original structure is higher). EK looks toward that end of the block as he stands; he is smiling slightly as he stands up and back. He walks to the block shelf in his flat-footed way.

EK chooses a small, isosceles triangle, walks back directly to the bridge structure, and places it on one end. He leans back slightly and then forward again to readjust the
triangle more precisely. Then he pushes himself from the floor with one foot, up and back, and then moves forward to the shelf. He chooses another triangle.

EK walks toward and then around the structure, so that he is squatting with his back toward me and his face toward the structure. He places the triangle down next to the first triangle he placed, and then twists them both and slides them down the incline of the bridge. One of the triangles falls to the floor; the other remains at the end of the structure. EK turns slightly so that I can see the side of his face and says, "I'm done." He leans forward and lifts the triangle off of the bridge structure.

D: "You're done?" My tone sounds disappointed.

EK is sitting, leaning on one arm away from me, his back still to me. He nods and says quietly, "Yeah." Then he leans back and falls in a controlled way onto his bottom as he turns his face toward me and his body toward me a bit more. He looks at my face.

D: "Your time's not over yet." EK makes a movement with his mouth that looks like he is saying, "Okay." I continue, "You still have a few more minutes for building..." As I am saying this, EK says, "No, no, I'm done with this part." He is looking at my face and then he gestures toward the bridge structure with the fallen triangle in his hand.

D: "Oh! What is that part?"

EK: "It's the bridge." His back is to me and he is gesturing toward and at the structure.

D: "It's a bridge?"

EK: "These are the corners so...these are...this is where the water is, so..."

D: "Where's the water?"

EK: "Here." EK points to underneath the bridge.
D: "Underneath there?"  

EK: "Yeah. That's why I made these so they don't fall under." He points to the ends of the bridge. Then EK raises himself up on his hands and feet with his bottom in the air-as if he is doing a "Downward Dog" yoga pose-and jumps up to standing. He stands, balances his body, allows his arms to flop at his sides, and walks toward the shelf.  

D: "I noticed you put those two triangles at both ends." EK doesn't respond, but he does seem to talk to himself as he bends and peers into the shelves. He puts his hand on a block, looks quickly toward his structure, looks back toward the block, and pulls it from the shelf. He turns and walks quickly to the structure. Here, he kneels and places the arch first on the bridge span, and then, after looking at it, under the bridge span. He rises quickly to his feet and walks back to the shelf. He stretches down and reaches for a double unit block. He walks quickly back to the structure and places it in a few different positions before leaving it on the bridge span. It lies on top of the long block.  

EK leans back and looks toward me. He asks hopefully (eyebrows raised, tone of voice), "Am I done now?"  

D: "Nope." EK says quietly, "Okay," and then raises himself up to standing. He stands, turns toward the shelf, and then back to me, smiling. He points toward the video camera and says, "I can see something." He has a big, goofy-looking smile on his face.  

D (laughing a little): "I know." EK keeps smiling and then turns to the shelf. He chooses two blocks, walks to place them on the structure, and then leans back, smiling slightly. He looks up at me briefly.  

D: "Tell me what you're doing, EK?"
EK leans forward, back to the structure. He points and says, "Ah...this is the corner, this is the, uh...this is the, um...this...this is the..." EK has picked up the "L"-shaped block and is moving is along the span of the bridge as if it is walking. He is smiling. He continues, "This is the, the, uh...this is to hold the bridge." He has placed the "L"-shaped block on the floor.

D: "That's to hold the bridge?" EK does not respond verbally. He has one hand on the "L"-shaped block and is lifting and moving the other, triangle block that he brought over previously from the shelf. He places the triangle under the span of the bridge as well. EK looks toward the other part of the classroom where his friends are playing.

EK leans back from his structure, folds his arms in his lap, and asks imploringly, "Am I done yet?" His voice is quiet.

D: "I'll tell you when it's time."

EK moves toward the shelf on his hands and knees. He chooses a large cylinder off of the shelf and starts to move back toward the structure.

D: "Why do you keep asking me?"

EK looks at me and smiles shyly. He says, "Uh...'cause...I don't know." He looks down as he places the block down in his structure.

D: "You don't know?" EK looks at me and smiles and shakes his head "no."

"Well, why are you wondering? Do you know?" EK is on his belly, looking under the bridge span. He has the large cylinder in his hand and he is pushing it around. He says quietly, "No," and shakes his head. He lifts the cylinder off of the floor and places it decisively on top of the bridge span. Then he turns abruptly and moves on hands and
knees toward the shelf. He sings nonsense words and sounds to himself as he looks into the shelf. Then he rolls back onto his haunches and around on his bottom.

D: "You have thirty more seconds, EK." EK moves forward and up onto his knees. He reaches forward to the top of the smaller block shelf and then rises quickly to his feet and reaches for a small cylinder. He grabs it and turns abruptly. EK walks over to the structure, kneels, and places the cylinder down. He looks at his structure when placing the block. Then he lifts it back up and makes a sweeping motion with his arm and the cylinder back and then forward again. He places the cylinder on top of the larger cylinder that is on top of the span with a dramatic flourish.

D: "Ooh!"

EK looks at me when I say this and he smiles and opens his mouth.

D: "Okay, will you tell me about it?!

EK nods and looks serious. His brow is furrowed. He pushes up his sleeves. He says, pointing, "This is the thing you can jump off into the water-" here EK uses his finger to "jump" off of the top-most cylinder and into the water below the bridge; he looks at me as he reaches the "water."

D: "Yeah."

EK: "Because it's a diving board."

D: "That's a diving board on top of your bridge?"

EK: "And this is the waiting line. And you climb up the stairs, to here, then you...then you, uh...whoosh-" EK makes a noise like air rushing and sweeps his finger down from the cylinder and along the bridge span, knocking off the triangle at the end of the bridge. He looks down at it. He reaches for it, replaces it, and knocks it down again,
saying, "Then they take off this edge, then they-" EK puts his finger on top of the small cylinder again, sweeps it down and across the bridge span, and then into the air above his head. "Then they keep it like this." He replaces the small triangle at the end of the span. He is smiling and looking down.

D: "Thanks for telling me." EK stands up and pushes up his sleeves. He moves to the entrance of the block area. "You're done now." EK walks out. "See you later!"

**Individual observation: EK.**

**January 9, 2012, 1:06 p.m.**

**Length of observation: 8 minutes, 4 seconds**

EK takes out two plastic animals from the accessory bins. I tell him that we're just using the blocks today. He says okay and puts the toys away.

EK slides the bin holding the small cylinders across the block area floor and then takes a large board off of the shelf.

EK marches out of the block area to use the bathroom. He is gone for approximately two and a half minutes. While he is gone, I sit down at the science table in the block area.

EK comes back. He walks straight toward the large hollow blocks, chooses one, stands with it for a moment as if considering how to use it, looks toward me, and then places the hollow block back. He then moves to the block shelf and chooses a long block.

EK asks me if the signs (the railroad signs) are "open." I tell him that they are not open now, but that maybe we can use them later. He nods "okay."

EK seems physically capable and strong. He holds two long blocks in either hand quite easily and is able to place them on the floor simultaneously using one hand for each
block. At times, he seems a bit clumsy, but it is almost as if he needs to grow into his feet.

EK works with his back toward me. He begins to construct an enclosure around the big flat board that he has placed on the floor using long blocks; he announces that he is building a pool. He takes two small cylinders from the bin on the floor and makes some robot-like noises as he "walks" them toward his "pool."

EK places one of the cylinders into the "pool" and rolls it a bit from side to side. Then he turns back to the bin and then back to the "pool." He takes the cylinders out of the "pool" and puts them back into the bin.

EK takes a long block from the shelf, holds it out from his body with one arm so that it is perpendicular to the floor, and looks up at its top. Then he leaves the block standing upright. EK sits back on his heels and look toward me as I speak with several other of the children who are playing in the dramatic play area. I move out of the block area for a moment to help the other children and EK continues building.

EK pushes a block along the floor into the long block that is standing upright. The long block falls over. EK winces as the block hits the floor. Then he crawls forward and slides himself along the floor and his hand along the block. He calls out to his friends in the dramatic play area, "Well, I'm not a bad guy!" [He has been listening to their play.] And then again, in a quieter voice, "I'm not a bad guy."

EK continues building. He puts the long block back in its standing position and attempts to put another block on top of it. The blocks fall; EK opens his mouth and makes a sucking sound through his teeth, like an audible wince. He turns toward me and looks up at me. I ask, "What's happening?"
He says, "It keeps falling down." EK seems frustrated—his movements are quick and abrupt, and his inflection is abrupt as well. He turns back to his structure and starts to rebuild. He pauses for a moment to look toward the other end of the classroom where the teacher is speaking to some other children.

EK stands with a double unit block in his hand and holds it in mid-air above the upright long block. He looks at me and then back at the block. He begins to place it slowly and deliberately on top of the long block; as he does, I ask him if he is trying to get it to balance. EK does not respond, but looks intently at the blocks as he slowly, painstakingly moves his hand away. The blocks remain standing. EK places another block—a small cylinder—on top of these two blocks and moves away quickly to the block shelf.

EK takes another cylinder from the bin on the floor. He walks toward his structure holding the block. He looks at me impishly, as if to say, "Look what I'm about to do," then smiles broadly as he turns toward his tall structure. He reaches up to place the block on top. I say, "Oh my," as he places the cylinder on top of the tall tower structure and then backs quickly away. EK looks proudly at the structure; he has his hands folded in front of his body and he nods subtly. EK says something quietly to himself and smiles broadly. I say, "Wow. That is very tall."

EK smiles and continues to look at the structure. He says that it is the Empire State Building. I say, "Oh, it is?" He says, "Yeah," and stares up the building admiringly. Then he moves toward the enclosure on the ground and begins to explain how to move into it. EK uses one of the small cylinders as a sort of figure and plays with it, moving it into and out of the enclosure and making noises as he does so.
EK picks up the bin of cylinders. He is smiling. He says something to me about using all of them and then dumps the entire bin of cylinders into the enclosure. He smiles broadly and says something that I do not quite make out. I ask, "What are those?" EK stands quickly and a bit clumsily and says that they are hot dogs that he is going to cook. He removes the two cylinders from the top of the tall tower structure he has constructed and adds them to the "hot dogs" in the enclosure. Then he deconstructs the tower.

EK places long blocks over the enclosure that now contains the "hot dogs." As he is building, I tell him that he has one more minute. He asks if he will get to do something else when he is finished and I say yes.

I tell EK to add his last block. As he does, he tells me that he is going to roast the hot dogs. He is smiling broadly.

**Individual observation: EK.**
**February 13, 2012, 1:11 p.m.**
**Length of observation: 6 minutes, 53 seconds**

EK rummages through a bin and chooses two people. He plays with them for a moment and then makes them "fall" back into the bin.

I say, "Alright, EK, so why don't you start with the blocks, and then in a little while I'll let you open up the people? Okay?" EK nods.

I remind EK that he has five minutes to build all by himself. He nods.

He begins to build on the "wrong" side of the blue line and I ask him to remember what the blue line is for. Immediately, he shifts his body and the block he has chosen so that both are inside the building area.
EK chooses three small squares and moves them around into different positions. He seems to be considering different configurations. Then he moves the blocks and his body so that he is looking into the block shelf. He pauses and looks at the blocks.

EK shifts his weight to his left and slides over to the double unit blocks. He takes three from the shelf, pulling each one easily from its space. He places them all into one configuration, pauses, and then moves them into another. The three are flat on the floor, side by side.

I whisper to EK to remind him to build on the "correct" side of the blue line. He looks up. I laugh and say, "I guess that's hard to remember, huh?" He smiles and nods. He continues to build, moving toward the block shelf.

EK places two small squares at the edge of the three blocks he has placed on the floor so that they form a sort of wall. One of the blocks falls as he turns away. When he turns back from the shelf, he is holding a unit block. He smiles up at me and shakes his head— it seems that he is laughing about the fallen block. He pushes the other small square block aside with the block he is holding, and replaces the remaining square with the unit block.

EK asks, "Why do these fall down?"

I respond, "I don't know. Why do you think?"

EK: "Because they're not...they don't really stay still." EK continues building as we talk. He is making an enclosure-lining up unit blocks on the edge of the small platform.

I say, "Maybe. But also maybe you're putting them too close to the edge."
EK continues to build. He seems to build with intention—he lines the blocks up precisely with the edges of the other blocks. Several blocks fall off of the edges of the small platform. Each time a block falls, EK picks it up and replaces it on the platform. He then lines the blocks back up with the edges precisely. He does not appear to be frustrated and continues to build.

After several attempts to build an enclosure, EK removes all of the unit blocks from around the edge of the platform. He places two of them side by side, flat on the floor, and then places two of them on edge on top of those.

EK: "Diana?"

Me: "Mm hm?"

EK: "I'm trying to make something for the animals."

Me: "You're trying to make something for the animals?"

EK: "...that, that, that they'll fit in."

Me: "What are you trying to make?" EK continues to build. He moves the unit blocks at the edges of his small structure closer together and places a small square on top of them, so that he has created a small enclosure with a covering.

Me: "Something for them to fit in?" EK responds, "Yeah," and continues to build, placing another small square onto the top of his structure. I say, "That's a good idea."

A square falls off of and into EK's enclosure. He lifts it up, and as he does, several other blocks fall. EK lifts them all up, and sits back on his heels. His brow is furrowed and he says, "Hmm." He appears to be thinking. EK starts to rebuild and then tells me that he's going to the bathroom.
EK comes back the bathroom and I tell him that he has one more minute to build on his own.

He sits back down near his structures. He pauses for a brief moment, and then crawls quickly toward the smaller block shelf. He chooses a large platform block from the shelf, lays it on the floor and slides it toward the middle of the block area. Then, he moves quickly to the other block shelf and lifts a long block easily with his left hand. He transfers the block to his right hand and then places both hands onto the block. He lays the long block along the edge of the large platform block, as if he about to attempt another enclosure.

As he is building, I say, "Alright, EK, this is your last block." He nods. I continue, "And then you know later you're gonna have a chance to come back, with everybody." EK responds, "And play with the animals?"

I respond, "Yeah. We'll see how that goes. Okay?" EK nods. "You wanna go tell S it's her turn?" EK jumps up and leaves the block area.

**Group observation: EK, S, and I.**

**November 29, 2011.**

**Length of observation: 6 minutes, 52 seconds.**

I begin to explain the rules of cooperative building to the group, but S interrupts, immediately engaging EK in a conversation.

S: "I'm making a longer diving board, so you stop..." She holds a large, long block and speaks directly into EK's face.

I is standing apart from them, near the block shelves. She appears to be looking toward them but she does not engage them or they her.
EK holds a small cylinder and sings a song about standing in line as he marches the block along the "diving board." His movements are expressive and dramatic. S smiles at him as she moves closer to the structure they are both adding to.

I continues to stack blocks. Her structure stands near EK and S's.

As EK and S move back and forth from shelves to structure, they seem to be aware of each other, physically. Their movements seem almost coordinated. EK walks near S, who is kneeling on the floor, but does not knock into her or touch her, even as his leg passes very near to her shoulder.

I continues to stack brickies near the blue tape line. She does not engage with S or EK verbally, and she does not seem to engage with them in other ways either. S and EK are building on different parts of the same structure. At one point, S adds a block to a part of the "diving board" structure and EK, who has been singing "Diving board, diving board!" and knocking his small cylinder up and down against the larger structure, jumps the block over and onto the block that S has just added.

S: "Okay! The diving board is almost ready. Okay?" She looks up at EK as she asks this. He looks at her as she is speaking I looks toward the two as they are speaking.

I walks over to me and says, "I put stuff on the blocks." She points toward her stacks.

I respond, "You know what? Tell your friends!" I shifts her weight forward and backward and holds her hands in front of her face. I continue, "Because you're building together. You need to tell them." EK and S continue building.

I ask I if she knows who she is building with. She replies, "It's EK and S."
I say, "It's EK and S. So, talk to them!"

S sits back from her building and exclaims, "The diving board is ready!" She smiles down at the structure.

I looks at me and points to her stacks. She says, "So, so, so..." as she is pointing. S repeats loudly that the diving board is ready and EK continues to march his cylinder along the span of the "diving board."

I tell I to talk to EK and S, not to me. I walks over to her stacks and bends to touch them. She stands up and turns toward me again.

EK is playing with another block, pretending that it is another person on the diving board.

I walks over and stands in front of me. I ask her if she wants to tell EK and S what she has built. She begins to talk about her stack. I point over her shoulder toward EK and S and say, "Talk to them." I says, "I'm all done done." I tell her to talk to S.

S walks over to me to hand me a small figure that has been mistakenly placed in one of the block accessory bins. I thank her and then tell her that I wants to show her what she made. S continues building and does not seem to respond to me. I walks around EK and S's structure and says, "I want to show you what I made." She touches her face near her mouth several times.

S continues to engage gesturally and physically (but not verbally) with EK. He has been stacking some small cylinders along the span of the "diving board," and when they fall over, S laughs quietly and smiles at him. I jumps up and down and flaps her hands.
I say, "S, did you hear?" I point toward I. "Did you hear?"

S looks toward me and smiles as if to acknowledge what I am saying. EK continues to re-stack the blocks that have just fallen.

I stands at the end of the block area farthest from me and jumps up and down. She runs a bit in one direction and then back the other way. I reaches into one of the block accessory bins and I remind all of the children that we are just using blocks. EK pauses in his building as I am speaking. S says quietly to I, "Uh, uh, I."

I half runs, half skips around in the back of the block area, smacking her feet against the floor as she flaps her arms up and down.

S and EK continue to build on the same structure. They are not speaking. S chooses blocks from the shelves to add to the structure and walks back and forth between shelves and building; EK is sitting on the floor in the same position he has been in.

The teacher tells the rest of the class that it is time to clean up. EK says, "Clean up? We're cleaning up?" He looks at S. She says, "No, we're not-blocks still have five more minutes." They look at each other as they are speaking.

I holds a block up and toward me. She says something, but she is very quiet and I cannot understand her.

I say, "You guys actually have two more minutes for building." EK turns around and looks at me as I speak. S continues building. I holds two blocks together in the air in front of her as if comparing them; she twists her arms so that her wrists come together and holds the blocks close to her face. Then she adds the blocks to her stacks near the block shelves.
S approaches me and asks if she and the others are going to have to clean up the blocks. I tell her that we can keep the block structures up until tomorrow. She walks out of the block area and I call her back in.

I continues stacking. She brings her face close to the blocks, as if examining them.

EK has taken apart part of the "diving board" structure and created another bridge structure. He holds an L-shaped block in his hands as if it is a baseball bat and twists his body as if about to hit a ball. He turns so that he is looking at me and says, "This is something I can knock down with my hammer." He smiles.

I tell him he should "talk to [his] friends." He immediately turns to S and says, "I'm gonna knock this down with my hammer."

S comes over and bends to look into EK's face. She says, "No, no, we're keeping it up til tomorrow." From her position near the shelves, behind her stack, I looks toward them as they are talking.

EK tells S that he is knocking the bridge structure over anyway and begins to swing at it with the L-shaped block. S backs away.

I say, "EK, blocks aren't for hitting. They're just for building." He looks at me and smiles, says okay, and steadies the structure.

S is standing over EK and she tells him that that had been her diving board. She says, "And that's my diving board. And that's something that I made." Her voice is whiny and her expression seems to be one of upset. EK looks up into her face as she speaks to him.
I continues to touch the blocks on her stacks. It appears that she is trying to line them up precisely; she bends and stands, bends and stands, looking at the blocks and touching them as if moving them into place. EK holds blocks up as if looking to see what they might look like in certain positions.

I tell the children that they have another minute and that they should be building.

I steps over her stacks and walks over to me. She says, "Diana, I put [unintelligible] that block." She repeats herself, and I ask, "Tape?" I turns away and says, "Yeah."

EK is building and S is at the far end of the block shelf.

I walks away from me toward the shelf. As she steps over one of her stacks, her back foot knocks into part of the group's structure and it falls. She turns to look at what has fallen. Then she looks up at me from underneath her bangs. Her expression seems concerned.

I say, "Okay, listen up, this group. You have...S, listen up...you have thirty seconds to build. So these blocks that are on the floor, you need to work together to make them into something." I point as I am speaking. The children continue to take blocks from the shelves.

I say, "You need to talk to each other so you know what you're building."

Immediately, EK suggests loudly to the others, "Let's build a prison wall!" S walks from the shelf with several blocks in her arms and says, "I'm starting to build it." I's head is bent and she is looking down at the block she is holding on the floor.
EK tells S he has some blocks that he can use on the structure and walks over to where she is building. He begins to build on the structure that she has made. S stands over him and watches as EK counts the blocks as he places them down.

I is talking quietly to herself as she builds on the stacks.

EK and S talk to each other and walk over to the shelf together to get more blocks. I remind them that there are a lot of blocks already out on the floor, and that we cannot leave blocks out looking like a big pile. They respond brightly that they will use them, and EK rushes over to another area to grab some other blocks from the floor.

EK turns and takes a square block from one of I's stacks. He looks up at me as he does and asks, "Can we use these squares?" I begin to say that he needs to ask I before taking it. Before I do, he turns to I and asks, "I, can we use these squares?" I is holding two big blocks in her arms, across her body; she looks as if she is struggling. She responds to EK, "Uh, yeah!" EK says very quietly, almost under his breath, "She said [unintelligible]." He reaches to take the squares from I's stacks. He and S continue to build; they are talking to each other about their structure.

I tell the children that time is up and ask EK and S what they have built. EK responds that they have built a prison wall. I ask I to tell me what she has made. She stands up and points down to her blocks; she says, "Uh, yeah, I put these blocks on the tape."

Group observation: EK, S, and I.
January 12, 2012, 9:32 a.m.
Length of observation: 19 minutes, 28 seconds.

I stands and stares into the other part of the classroom while EK and S begin building. I walk into the block area and use my hands to turn her shoulders and body to
face her building partners. I sit down behind her and hold her between my knees so that she is facing EK while I talk to him about his building.

I ask EK if he remembers what he built. He smiles and says that it is a barbecue for hot dogs. I say that that is so funny, and then ask I, "Isn't that so funny?" I give her a gentle push toward EK and she takes a few steps toward him; then she turns back to me and says, "Was bery silly!" She smiles broadly. I say, "It is silly! You should talk to him about his idea." I gesture toward EK as I am talking.

EK begins talking to me about his structure. I is standing in front of me, so he is also talking toward her, but it does not seem as if he is engaging her nor she him. S comes and stands directly in front of me-she asks if they can build using the railroad signs. I tell her that only the blocks are open today.

I stands against the block shelf nearest me-her back to is the block area and EK and S. She is staring into the other part of the classroom with a blank expression. Her eyes are unfocused, her mouth is slightly open, and her facial muscles are loose. It seems that she is lost in thought or distracted. I move away from I to another part of the block area.

EK and S are talking to each other. EK talks about how his grill is too hot for people to go near. S looks into the other part of the classroom and then walks out of the block area. I remind her that it is her time to be in blocks, and she comes marching back into the area.

I turns to me and asks, "What's happening? What did she do?" EK looks up at I while she is speaking. I tell I that I think S was looking at a puzzle in another part of the
room. She turns and looks down into the block area as S begins to place some blocks down.

I begin to point out some of the structures that the children built on their own. I point to S's house and then point of the "appetizers" that I constructed. EK gets up from where he is sitting and walks out of the block area to say "hello" to his mother, who is in the other part of the classroom. I walks over to the area where EK was just sitting. S takes her small house apart—she gathers all of the blocks into her arms and walks with them to a different part of the block area.

EK comes back into the block area. He walks to where I am standing, bent over, moving some of the wooden trucks out of the way. He asks what I am doing and I tell him. S is building quietly at the farther end of the block area. I is sitting near the block shelf, between it and the blue tape line. She holds a brickie in her hand and crawls forward, balancing precariously on one hand, her wrist (of the hand that is holding the block), and her knees. Her feet are in the air behind her. She seems precariously balanced, as if she might fall forward. Then she leans back and sits on her bottom. She places the block onto the floor and pats it several times, saying quietly, "Step...step." She looks up at me as she talks. I ask her what she needs, and she says, "Dis is a step." I ask her what the step is for and she responds quietly; I cannot hear what she says. EK stands up and walks around the blocks, away from where he has been sitting near I. He says quietly, "That doesn't look like a step." I stands bent over the block, patting it and pressing down in it with two hands. EK looks down at I from where he is standing.

S is building quietly on her own.
I takes her foot in two hands and uses her hands to push at the block that is on the floor. She looks up at me and talks, but I am not sure what she is saying. I say, "You're stepping on it like a step." EK says, "No, no. People cannot step on it." I agree and say that blocks are just for building. EK nods and repeats what I have said. I looks at EK while he is talking.

All of the children pause in their building for a moment; they all seem lost in thought. S and EK are on one side of the block area and the structure; I sits on the other, across from them. I say to EK, "Maybe you have another idea that I could do."

EK begins to say something. I is looking down at the block that is on the floor between her legs. EK turns to S, who is next to him, and talks to her quietly. They are about six or eight inches apart and talking quietly to each other. They peer into the block shelf together and look at each other's faces while they speak. I can hear S asking EK questions about what they need. They are having a conversational back-and-forth.

As EK and S begin to build, I looks up at me from where she is sitting. She smiles and then turns her head to look at EK and S.

EK is placing wooden figures on top of a large flat block and counting them. S tells him that there cannot be more than one captain of a ship; she looks at me as she says this. EK tells her that there can, and he also looks up at me briefly. They continue to talk and build.

I asks loudly, "Can I go to de odder blocks? De odder blocks?!" I ask what other blocks. I says, "Doze odder blocks!" She points to her left, but her gaze is focused on the block shelf opposite where she is sitting. I tell her that she can use those. I repeats, "Deez odder blocks." She is pointing, but I am unsure about what she is pointing to. I say, "You
can just use blocks. Not signs or anything else." I is not looking at me; she seems to be looking into the other part of the classroom.

At the same time, EK and S seem to be discussing their structure. They are talking about its different parts and they seem to be negotiating and explaining. EK plays with one of the figures on the top of the flat board; S exclaims loudly, "I'm putting my people here!" EK sings while he moves his figure around on the structure.

I is sliding blocks around on the floor.

S gets another block from the shelf near I and talks to EK about putting the more than one person on a seat. She comes back to where she and EK are building and he says, "Okay! Now, now one of those has to be the captain. And the helper captain." S gets up again, saying she's going to do something. EK watches her as she walks to the shelf.

EK and S are collaborating on their structure. As EK rises and walks toward the block shelf and S, I looks up at him and says something. He does not respond to her or acknowledge her, even though she is sitting right in front of the shelf he is getting blocks from.

EK and S walk back to their structure together. S tells EK to put the captain seats "right here," and EK responds to her, saying, "If you will move this..." S says "no" and pats what she refers to as the front of the boat; she tells EK that that is where they are putting the captain seats. EK says "Okay," and places a block there. S moves to another area of the block area to retrieve another wooden figure that EK has pointed out to her. She hands it to him and he places it on the structure. S and EK are working cooperatively and collaboratively.
I has been working quietly and alone near the block shelf. She is placing long butter sticks in a line on top of the blue tape line. S and EK continue to talk to each other about the placement of the figures on their "ship;" they negotiate and plan together.

I has placed the long butter sticks all along the blue tape line. She stands up straight, makes an exclamatory sound, and looks around for me. Then she stands with one arm on the block shelf. EK stands up and looks at her block line; he says something to I about it looking like a train track. S pauses in her work as well. EK turns to me and asks, "Are the trains open?" I say that only the blocks are open.

S moves to the "boat" structure and continues to build. She talks to EK about putting something on the structure. EK is looking into the shelf near I. He crawls on the ground near I's legs. As she moves, I loses her balance and falls. EK looks up as she falls. I rights herself into a sitting position and EK rises from his spot and moves back to where S is building.

S leans on the platform block that is the deck of the "boat" and it tips over. All of the wooden figures fall off. S say, "Whoa!" and EK says good-naturedly, "Again! Why does that keep happening?!" He squats and he and S begin to rebuild. They talk about where they are placing their figures and what the different parts of the "boat" are.

I is at the far end of the block area. She sits with her back against the wall and puts the blocks into different configurations on the floor. She looks physically uncomfortable-cramped and crowded.

S is talking loudly to EK about the placement of their figures and the seats on the boat. EK plays with the figures, using voices and directing their action. He looks at S periodically while she is talking.
S moves to look into one of the block accessory bins. She says loudly that there is something in it that does not belong there. EK looks up at me as S is talking and tells me that she is just taking something out of the bin. Then he asks S if it is a block. S says, "Yes," as she rummages around in the bin. EK has paused in his play and in his building, as if he is waiting for S to finish looking for the thing she is looking for. She finds it and smiles. She walks back to the structure and EK says, "Oh! That's the captain's hat! That's his hat," as S affixes the hat to one of the wooden figures.

I continues to move blocks around on the floor at the far end of the block area. She is not talking. She looks intently at the blocks she is manipulating. I stands two long butter sticks upright between her legs. Her back is against the wall and she struggles to stand without knocking the blocks over. She succeeds in standing and moving her body around and away from the two standing blocks. She looks at me briefly when she has gotten up and then she turns to face the two standing blocks and look down at them. It seems as if she is admiring what she has just created. After a moment, she begins to move again. First she peers into the block shelf, and then she moves to the block line that she made previously and takes two of the blocks from it. She moves to place them next to the other two upright butter sticks. She pauses and looks up and toward me with a broad, open-mouthed smile.

S and EK are building and playing with their "boat" structure.

I tell the children that they have about five more minutes and that then we are all going to clean up. EK asks if everyone will be cleaning up or if it is just the people in the block area who need to. I explain that we will be cleaning up the blocks.
EK and S decide to "set sail." EK begins to push the "boat" as S clears away some blocks that are in front of it. EK pushes the boat and S quickly constructs an arrow out of a double unit block and a small triangle; she says something about it "showing you where." EK pushes the boat forward, so that it is almost touching the block shelf, and S shows him the arrow, saying, "No! The arrow! Look!" EK stops pushing, looks at the arrow, and says, "No, we have to go this way."

I is building in the far end of the block area. She half squats, half sits on EK's "grill"; her back is to EK and S (and me).

EK and S continue discussing and negotiating about the direction the boat is taking. I walks over to the shelf almost directly in front of the boat. EK moves the boat backward as I approaches; it seems that he is making room for her to walk past.

S sings, "Follow the arrow, follow the arrow."

EK chants, "Sorry, sorry, sorry," as he backs the boat up. S continues to talk about the arrow. EK says something about canceling the ride and S asks why. EK says that now they can go, and then reaches to move the arrow. S notes aloud that he has changed the direction it is pointing is, and EK says he wants it to be that way.

I is still in the far end of the block area. Her face is in the corner. She is playing with blocks, but it is unclear what she is doing.

EK and S continues to play with their "boat." They are docking it at the block shelf and are negotiating about ways to have the passengers get off.

I stands and rushes over to me, saying excitedly, "Look at doze! Look at doze!"

She points at a stack of long butter sticks she has made on top of the hollow blocks in the
corner of the block area. I ask her what she is showing me, and she says, "Dis." I ask her what that is, and she replies, "It's a Side." She continues to point at the stack.

S comes over and interrupts, "I'm finished." I tell her that we are going to clean up. She walks out of the block area—her nanny has come back to school with a pair of shoes for her (she has been wearing rain boots).

I continues, "Yeah, it's too many." I ask why it is too many. She responds but I cannot understand her. She walks back over to the stack, takes the block off of the top, and turns to put it back onto the shelf.

EK continues to play with the boat and the people. He does different voices for the ship captain and the people.

I tell EK and I that we are going to clean up. I stand and ask EK if we played a clean-up game before. He looks up at me, nods eagerly, and says, "Yeah." I tell I that I am going to tell her about "our game." I ask EK if he remembers what the clean-up game is. He begins to explain what he remembers: "You find a block that is like the other blocks and you stack it." I say, "Yeah," and ask EK if he can tell I. He starts to explain again, "If you find a block, like, if you find a block like this-" EK holds up a double unit block toward I and looks her in the eye, "and then you found another one, you create a stack like this." He stacks the block on top of another one like it. I looks at him and then turns away and bends down to her stack of long butter sticks. I move over to where I is standing and ask her if she heard the directions. She says yes. I tell her again that to clean up, we are making stacks. She has made some small stacks on top of the block shelf; I move them to the floor and tell her that we are making the stacks on the floor. She follows my movements with her gaze and also mirrors them with her body. We both turn
and bend to the floor. I say, "So you have to make a stack of blocks that are alike." I begins stacking blocks and I turn to EK and tell him that I am going to start stacking some of his blocks.

S comes back to the block area and asks if she can help us stack. I tell her to come, that we are cleaning up. S begins to stack the blocks from EK's "grill" and I turn to I. She has stacked up the long butter sticks that she was using; I ask her if she can stack another type of block. I moves to the shelf and takes a block of that type off. She holds it out to me. I tell her not to take things off of the shelf, that we cleaning up the blocks that are on the floor. I puts the block back onto the shelf and moves to the floor, where she places one small triangle.

S asks when we are going to clean up and I tell her that this is part of clean up, that the game just makes it more fun. She and EK are moving around the area, stacking blocks. I turn to I, who is sitting, looking at the block she has put onto the floor. I ask her if she can stack some of the cylinders that are inside EK’s "grill." She gets up quickly and moves toward the structure.

I: "The cylinders?" I say, "Yes," and I begins to stack them into tall, cylindrical towers. EK has been listening to us, and says, "No, uh, these are cylinders." He holds up a large cylinder toward EK. I say that that is a cylinder, too, but that the blocks I is stacking are also cylinders; they are the same shape but different sizes. I looks at EK and at me while we are speaking. I explain to EK what a cylinder is using the blocks to show him.

I continues to collect the cylinders. S has some difficulty stacking a certain type of block. She tells me in a little bit of a whiny block that "these don't stack." I move to
where she is sitting to show her how to stack that type of block. EK twists his shoulders and neck around to look at S and at the blocks she is holding.

I notice that I has been trying to stack the small cylinders into towers. I move to where she is sitting and explain that she can group the cylinders into groups of five. I show her what I mean by standing two cylinders next to each other. She begins to group the cylinders.

I ask EK if he remembers what we do when everyone is done making stacks. He nods matter-of-factly and says, "Put them on the shelf." I explain to the children that we need people to load the shelves and other people to deliver the blocks to the loaders. S says that I should be the loader and that they will be the deliverers. EK says that he wants to load. I say, "Okay," and he moves toward the shelf. I hand him a stack of blocks. S brings over a stack of blocks and says, "EK! Here!" I continue to group the small cylinders.

I suggest that we should have two loaders, and tell the children that I will be a loader, too. S asks if she can be a loader, and I say, "I think you're a good deliverer. You're very strong." S steps back, and then forward again and tells me about a cantaloupe that she carried. I say, "You did! Oh my goodness. You are strong!" S nods vigorously and smiles broadly; she turns and bends to lift a stack of five long blocks. EK asks her what she said about the cantaloupe, and S stands up straight and says, "I carried a whole heavy cantaloupe to my [unintelligible]!" She bends to lift the stack of long blocks again.

I am helping to move the stacks of blocks to the shelves. I begins to walk away from her stacks, out of the block area. I call her back and tell her that she needs to be a deliverer. She walks back toward me and points at a stack of blocks. She asks if those are
for the deliverer. I tell her to pick the blocks up and give them to me and I will put them on the shelf. She lifts one long block and hands it to me; we hold it together for a moment, and I put the block onto the shelf.

S is delivering blocks to the shelf. She hands them to me and to EK. She is working quickly and industriously. EK is loading. After handing me a second long block, I pauses and looks toward the other end of the classroom. I say, "Good ahead, keeping going." I stands still and stares. It appears that she is distracted by the other activity in the classroom. I squeeze her arm near her elbow and say gently, "I, get me some more blocks." I appears to refocus, and she bends to lift some more blocks from the floor.

S continues to deliver blocks to EK and me. She holds stacks of blocks in her hands and waits near us while we load the shelves.

I turn and show I the cylinders that she has arranged in a row (not in groups) on the floor. I get the bin that they belong in, put it on the floor, point to the bin and then to the blocks, explaining that the cylinders belong in the bin. Immediately, I begins to put the cylinders into the bin one by one.

S lifts a stack of blocks and walks with it toward the shelf. She exclaims, "This is a good game!" I say that I agree, that it makes clean up a lot more fun. As she is about the place the stack on the shelf, EK tells her that she is a deliverer. S stops, turns, places the stack of blocks on the floor and pushes it toward him. EK moves toward S and the stack, and begins to pick the blocks up. S pats the shelf where she was about to put the stack and tells EK to "put them right here, this is where they go."
The children finish cleaning the block area and I say, "Thank you," and tell them that they can find something else to do in the classroom for another few minutes. They walk out.

**Group observation: EK, S, and I.**
**February 13, 2012, 1:27 p.m.**
**Length of observation: 6 minutes, 40 seconds.**

S and EK come into the block area.

I say, "I, EK and S are coming into build with you."

S rushes over to her tower and asks loudly, "Does anyone wanna add to my big tower I made?!" EK reaches into the bin of animals and pulls out two horses. He begins to play with them on the floor in the middle of the block area.

I continues to build. She has made a smaller "I" with a double unit block and two unit blocks. I ask, "I, do you want to tell EK and S what you're doing?"

I is bending over, looking at her small "I" structure, so that her head is almost upside-down. She says, "I don't know," and walks away.

Me: "Yeah, you do! Tell them what that is." EK is playing with his horses on top of I's larger "I."

I says, "That's "I."

To EK, I say, "EK, you know what, we're gonna just use blocks right now." EK looks up at me and nods; his expression is one of disappointment.

I says, "That's mine." And then, "We're gonna just use blocks now."

Me: "I, tell EK what you made."

I walks to where EK is sitting. She says, "EK, just use blocks now."
Me: "No, I, what is that on the floor?" EK turns toward I's two "I" structures. I is wandering near me; she spins around, steps from foot to foot.

I, to me: "That's "I."

Me: "Tell EK."

I walks closer to where EK is sitting on the floor and turns her body toward him. She says, "EK, it was my "I." EK nods tentatively; he does not make eye contact with I. He reaches down to touch a part of the structure.

Me: "Do you see what she means? She made an "I"?" EK nods more vigorously and reaches to touch the structure again. I stands, one hand holding the fingers of her other hand. She is looking toward me.

S has been building quietly on her own on the other side of the block area behind EK and I. Now she walks to the area where the wooden people and trucks are kept.

S. says, "Can we use these people?"

Me: "Nope, just blocks for today."

I: "Just blocks for today." She has come to stand near where I am sitting and has turned so that she is looking into the block area.

EK moves toward a small pile of blocks that is near I's "I"s. He looks at her smaller structure and says, in a small voice, "Ooh! This looks like a seesaw! I would like to...we would like to go on that seesaw." As he says this, he takes two small squares from the pile and crawls toward the smaller "I" structure. He says, "Ooh, yay, yay, yay," in this same small voice as he places the two squares on the structure (as if they are going on a seesaw).
I is stepping on a long block. I remind her that blocks are for building with, not for stepping on.

S continues to build quietly on her own. She is adding to the structure that she began earlier.

EK is seesawing the two small squares back and forth.

I says, "I'm done," and starts to walk out of the block area.

Me: "No, you're not. It's time for building with your friends."

I: "No, it's not. It's not time for building." S looks up from where she is building toward our exchange. I am standing up behind I at the entrance of the block area.

Me: "This is not a choice. Stand up. It's time for building." I guide I back into the block area by putting my hands on her upper back and turning her body to the block area. I walks into the block area, over to the block shelf, and chooses a long butter stick.

EK is playing with the two small squares. It appears that he is pretending that they are two people-they are seesawing on the end of I's small "I" structure. He makes them fall off: "Are you okay?" - "Why did you bonk my tushy? That was not really nice." EK makes voices for each of the squares.

While EK is playing near the entrance to the block area, S is building quietly in the back. I has walked to where S is building. She bends and puts her block down on top of a hollow block that is on the floor, and then stands again, still holding the long butter stick. S walks to the shelf and collects several blocks, so that her arms are full.

S walks to another portion of her structure and says, "Um, maybe just a little more on my side." I looks toward her as she speaks. S kneels and begins to place her blocks on the structure. I walks around the tall tower structure toward where S is standing. She
seems to have trouble navigating the small space between the structures and where S is sitting—she seems off-balance.

I stands near the entrance to the block area and appears to be watching EK. EK looks up at her briefly and then continues to build. He stacks several blocks, creating a tower and then says in a funny voice, "This will stay." He looks up at me as he says this.

I reaches down to the floor and lifts a long block. She turns to me, away from EK, and says, "Dis will stay like dat." She continues to hold the long block in a vertical position, parallel to her body and in front of her. She giggles when EK speaks.

EK and S continue building on their own. I takes a few steps out of the block area while holding the long block. I remind her that the blocks need to stay in the block area. She turns and walks back into the block area while still holding her block.

EK is reaching from his kneeling position on the floor to place another block on top of his tower. S looks toward him; she appears to watch him and look at his building. EK says, "I don't think this will stay," as he places a block on the top of the tower. The tower remains balanced and standing as he takes his hand away; EK leans back from it, with his hands folded in front of him. He is smiling.

Me: "It did." EK smiles. He leans back from the tower and stands. As he walks to the shelf, he says, "I'm gonna add one triangle." I looks at EK as he is talking; she smiles broadly.

S: "On the very top."

I is sitting near the block shelf. She has pulled a long block from the shelf and has placed it on the floor, parallel to the shelf. She is straddling the block and pushing down on it with both hands.
EK walks back to his tower with a small triangle and places it carefully and slowly on the top of his tower. He pulls his hand away quickly and says, "Oh no!" The tower remains standing.

I has placed another block on top of her long block in a perpendicular position. She is giggling quietly and saying "T," "T."

S walks toward the place where EK is building. She pauses and puts a block down near his structure.

S asks, "Diana? Can I leave blocks?" I tell her that we still have a few more minutes.

EK looks toward us as we talk. He puts his hand gently on his tower and runs it down the length of the tower. He looks down at the base of the structure and then back up at me. He says, "I don't think if I take this one block off..." He is smiling.

I respond: "The one on the bottom?" EK nods. "I don't think you could do that without it falling. Do you?" EK nods and then puts both hands on the bottom-most block. He moves it a bit and his tower begins to topple. EK flinches, and then smiles as the tower falls over, very close to his face.

While this is happening, I whines, "Diana. I'm done." I ask if she needs to use the bathroom. She responds, "I just need to do something different."

Me: "It's not time to do something different right now."

EK looks up at me, smiling sheepishly. He says, "I was right, that would happen."

I say to EK, "Oh well, you can fix it." He smiles and moves to pick up the fallen blocks. He begins to rebuild his tower—it leans and falls. He catches the falling block as it passes in front of his face. He flinches and smiles.
S continues to build quietly on her own in the far end of the block area. Her back is to EK, me, and I.

I has walked out of the block area. The teacher redirects her. EK looks toward The teacher, and then at me.

I say, to I, "I, put your body in the block area, and choose something to build." I walks back into the block area, squats, picks up a block, and begins to build.

EK has rebuilt a small tower. He is carefully placing blocks onto it. He looks intently at each block as he places them.

S asks, "Do we have to build our own thing?"

Me: "No! You're all together. You can build together."

EK smiles as he places a small triangle on top of a tower that is taller than he is where he is kneeling on the floor. He says, very quietly, "Ta da!"

Me: "You fixed it!" EK stands, takes the top-most block off of his tower, and replaces it with another block.

I is sitting cross-legged near the block shelf. She has set one unit block upright and put another on top of it-she has built a small tower that looks like a miniature version of EK's.

A child in another area of the room says, "I'm done!" S says, "I'm done." EK repeats this, and then, so does I.

Me: "Nope! You guys aren't done yet." The teacher tells the children that the other child is finished, but that they are not done building yet. EK continues to build, making his tower higher. S, who has left the block area, comes back in and asks me a question.
I, who has placed another unit block onto her tower, says, "Diana! I'm done...finished building it!" She walks toward me. "I'm finished building."

Me: "You're not finished building until I say it's time." I walks back toward her small tower. She and S are choosing blocks from the same area of the shelf.

EK, who has made a tower much taller than himself, scoots back from it across the floor and pointing up at it, says, "Look at my fallen landed pizza tower!" EK gestures up and then down toward his tower.

I and S look toward EK. Then S walks toward EK's building with several blocks and says, "I'm gonna make a measuring tape."

I attempts to place a block on top of her tower but it falls over. She looks up at me as it crashes to the ground. She bends and begins to pick the blocks up.

EK picks up a long butter stick and begins to play with it. He gives it a silly voice and begins bouncing it up and down on the floor near S's original structure. S is building a tower next to EK's tower.

EK says something about a "stadium castle." S announces loudly, "No, that's not the stadium castle!"

EK, moving his block onto S's structure, says, "Oh, here's the stadium castle."

S: "No! No, no, that's not gonna go inside...they're gonna go inside the stadium castle." She continues to add to her tower, but she is looking back and forth between that and EK. I is reconstructing her tower. She has stacked four unit blocks vertically. The tower reaches to her waist.

EK continues to play. He makes high-pitched squeaking noises as he moves the block up and down with jerky motions. S moves toward him.
S: "No, no! WE are gonna go inside the stadium castle, EK Klein." She is smiling and her voice is raised and excited. She adds to her tower. S uses one hand to add blocks to the tower that is thin and tall. Her movements are controlled and precise.

EK turns and carries a long block in one hand over to where S is building. He announces in a deep voice as he slams the end of the block onto the floor, "I am papa! You [unintelligible] my stadium! My stadium [unintelligible]."

S: "Uh, uh, stop that, EK. Stop that. Because I don't want..." She speaks in a lower, quiet voice and puts her hand gently on the top of his block. EK is subdued.

I has been building quietly. She has added a fifth unit block to her tower. She pauses, looks at it, smiles, and walks carefully past it to the block shelf.

Me: "Okay, now you guys have about one more minute." As I am speaking, I attempts to add a small triangle to the top of her tower. She hits it with her body as she comes close to it and it falls over. She grimaces up at me, and then bends to pick up the blocks.

EK and S look toward me. EK asks, "And then we can clean up?"

Me: "We don't have to clean up. We can just build for another minute. We can leave these up." EK turns back to his long block, which he has placed down. He adds a small square to the top of it, and says, "I'm gonna put my last block on."

I sits on her bottom and begins to build a structure between her legs. EK moves toward where she is building and takes a block from the floor near her. She looks toward him. He moves back to his building with the block-a small triangle-and places it on top.

EK: "I'm done."
Me: "Talk to your friends and see if they're done." I has two unit block stacked into a tower; S is building quietly on her own behind EK.

EK turns to I, who looks up at him while she is placing another block onto her tower. He asks, "Are you done?"

S answers, "Yes, I'm done!" EK asks I again, "Are you done?" He points at her. I does not answer and looks back down at her tower as she places a third block onto her tower.

S asks me, "Diana? Can I get out?"

Me: "Sure." I scoots her body back from her building and pulls her legs into her body so that they are no longer around her tower. EK and S leave the block area. I stands and reaches into the block shelf for another unit block. She adds this to her tower. It is four blocks high. Then she looks at me and walks toward me.

Me: "Are you done?"

I: "Yeah!"

Me: "Okay!"
## Observation Grids

<table>
<thead>
<tr>
<th>LANGUAGE</th>
<th>EB</th>
<th>H</th>
<th>R</th>
<th>EK</th>
<th>S</th>
<th>I</th>
</tr>
</thead>
</table>
| October  | -understands directions (receptive language)  
-able to express desire  
-not very much expressive language (EB has a cold→not feeling well; also, he has a stutter) | -receptive language processing seems a bit delayed  
-expressive language seems disjointed, sometimes out of context, or slow  
-uses language to convey ideas (“These are going to be the doors.”)  
-literal/concrete understanding of language (moves body to inside of tape line when directions are ambiguous)  
-some challenge with articulation | [7 November 2011]  
-receptive language  
-uses language to describe actions/intentions (“I’m building a [unintelligible] …”)  
-lateral lisp (articulation challenge)→sometimes presents challenge in communicating with others |  |  |  |
| November | -receptive language→answers questions, restates what others have said  
-expressive language→asks questions about rules  
-describes (pretend aspects of) structure | -asks questions about what is going to happen  
-makes statements about what is going to happen  
-uses language to get others’ attention  
-uses language to describe function and aspects of pretend structure  
-states intentions (“I’m gonna make a, a big river with a boat.”)  
-self-talk | -repeats portions of others’ utterances (in attempt to clarify?)  
-receptive language processing challenge?  
-states intention  
-responds to reminders about rules  
-short utterances  
-humor (“Isn’t this very nice?” referring to the camera); “Diana. I’m falling.”  
-speech/articulation not clear→ |  |  |  |
| January | -stutter | -uses language to describe what is happening | -answers questions about her block structure | -receptive language (acknowledges stated rules) |
|         | -uses gesture to supplement verbal expression | -challenge with receptive language(?) (answer to question seems only minimally related to question) | -minimal language in this session (seems focused on building) | -states intention (“...I’m building a cool house.”) |
|         | -challenge with slow expressive language/processing | -uses language to comm. with peers (talks to EB about what the building needs) | -uses language to get other’s attention/to engage | -uses gesture to comm. |
|         | -responds to verbal instructions | -makes statements about her ability (“I know how to make really cool buildings.”) | -clear speech, articulation | -repeats portions of others’ utterances (in attempt to clarify/process? Echolalic?) |
|         | -makes statements about what is happening ("It keeps falling down.") | -describes aspects of structure (pretend) ("There’s a...") | -states intentions (“...I’m building a cool house.”) | -receptive language processing challenge? |
|         | | | | 

- directs action, illuminates thinking (“Okay, now I gotta a big stream…I’m gonna move the river a little bit…”)
- answers questions
- sometimes difficult to understand
- self-talk
- expresses feeling of pain (“My fingers are hurting, Diana.”)
- asks questions related to structure (pretend play) (“You wanna go on top of a bridge?”)
- seeks to engage with language
- attempts to explain structure but it is a challenge to understand speech
- makes statements about her ability (“I can step over.”)
- receptive language (acknowledges stated rules)
- states intentions (“...I’m building a cool house.”)
- uses gesture to comm.
- responds to verbal instructions
- makes statements about her ability (“I know how to make really cool buildings.”)
- describes aspects of structure (pretend) (“There’s a...”)
<table>
<thead>
<tr>
<th>Date</th>
<th>Stutter</th>
<th>Language Use</th>
<th>Language Use</th>
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</thead>
<tbody>
<tr>
<td>Mid Feb/Early Mar 2012</td>
<td>-asks questions to clarify/confirm understanding/directions (receptive language)</td>
<td>-uses language to get others' attention/directs action/responds to scaffolding</td>
<td>-acknowledges questions/statements (receptive language)/asks about causes</td>
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<td></td>
<td>-very short, succinct verbal utterances (particularly when put &quot;on the spot&quot;)</td>
<td>-challenges with receptive/expressive language/responds to state of building/intentions</td>
<td>-states intentions/comm. intentions</td>
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<td></td>
<td>-uses language to supplement verbal speech</td>
<td>-strength</td>
<td>-receptive language (instructions/questions)/-asks humor/make jokes/ -states/comm. intentions</td>
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<tr>
<td></td>
<td>-self-talk</td>
<td>-strength</td>
<td>-responds to verbal reminders (receptive language)</td>
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<tr>
<td></td>
<td>-self-talk</td>
<td>-strength</td>
<td>-asks one word questions/engages with instructions/directions</td>
</tr>
<tr>
<td></td>
<td>-answers</td>
<td>-strength</td>
<td>-uses language to engage</td>
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</tbody>
</table>
Vocabulary (?) is confused ("Whose name does that start with?")
-questions are more involved than previously ("What name does S--- start with?")

<table>
<thead>
<tr>
<th>PHYSICAL</th>
<th>EB</th>
<th>H</th>
<th>R</th>
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<tbody>
<tr>
<td>October</td>
<td>-coordinated movements -in command of body and movement (possesses body-space awareness, motor planning, etc.)</td>
<td>-&quot;loose&quot; grip and gestures (developing strength; low tone?) -hops/jumps up and down, flaps hands, smacks feet on the floor (seeking sensory input?) -motor planning challenges (attempts to hold too many blocks at once) -articulation</td>
<td>(7 November 2011) -moves quickly and with intention (physically confident and competent) -gestures -movement illuminates emotional state</td>
<td>(November 2011) -physical experience of blocks influences developing understanding of concepts of &quot;balance,&quot; etc. -body-space awareness -gesture seems to extend idea</td>
<td>-motor planning -body language illuminates emotional state -possesses the physical ability and control to execute mental intention -gestural comm.</td>
<td>(strength still developing -coordination still developing -motor planning still developing -body-space awareness still developing -block building as physical experience -physical limitations undermine confidence, ease)</td>
</tr>
</tbody>
</table>
| January | -posture indicates confidence
-movement is coordinated and efficient | -articulation
-dumps wooden blocks people out of truck three times (sensory input?)
-experiment with physical objects | -physical ability seems typical | -physically competent, appears confident
-physical movement illuminates emotional state | -quick, efficient movements | -developing balance, strength, coordination
-motor planning still developing (BIG challenges.) |

| mid Feb/Early Mar 2012 | -confident posture
-motor control/hand-eye coordination
-balance, motor planning, strength (is able to carry out physically his ideas/intentions)
-physical movements and stance illuminate emotional state | -awkward, "halting" walk at times
-developing strength ("...loose grip")
-motor planning, coordination still developing
-knocks into blocks accidentally (motor planning, developing body-space awareness)
-uses gestures to supplement verbal expression
-physical movements illuminate emotional state
-physical experience with blocks supports developing concept of "balance" | -strong motor planning and coordination
-strength
-physical movement illuminates emotional state
-physical experience with blocks supports developing concept of "balance" | -coordination, strength
-motor control | -motor planning still developing
-strength improved
-balanced improved |

<table>
<thead>
<tr>
<th>COGNITIVE</th>
<th>EB</th>
<th>H</th>
<th>R</th>
<th>EK</th>
<th>S</th>
<th>I</th>
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</thead>
<tbody>
<tr>
<td>October</td>
<td>-responds to reminders/one step directions</td>
<td>-ability to build upon other's</td>
<td>[7 November 2011]</td>
<td></td>
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</tr>
</tbody>
</table>
- is able to create a structure with symmetry
- describes structure as “a castle” → developing ability to think abstractly/
symbolically
- shares ideas
- uses observation
- developing spatial awareness
- ability to compare shapes/size
- evidence of intention/planning → “I’m building a …”
- shares ideas
- developing symbolic/abstract thought
(“pipes”)

| November | - physical movements/gestures indicate thinking
|          | - memory (of directions and sequence)
|          | - uses problem-solving skills (trial-and-error)
|          | - creates symmetrical structure
|          | - symbolic/
|          | - symbolic
|          | - asks clarifying questions
|          | - intention/planning
|          | (“I’m gonna build a [unintelligible]…”)
|          | - observation
|          | - comparison (between tape
|          | - symbolic/representation.
|          | (EB’s castle, drawbridge)
|          | - intention
|          | (“These are going to be the doors.”)
|          | - ability to create symmetry
|          | - developing/emerging spatial awareness
|          | - uses concrete object to develop symbolic/abstract idea;
|          | abstract ideas are connected to concrete objects → clock made of quarter circles governs drawbridge
|          | - link between thought and expressive language seems slow (difficulty comm. ideas)
|          | - seems to understand idea of “pretend” as thinking about something “not real”
|          | - shares ideas

- evidence of intention/planning → “I’m building a …”
- shares ideas
- developing symbolic/abstract thought
(“pipes”)
mid Feb/Early Mar 2012

- style of building seems to indicate intention/planning
- creates patterns in building (emergent math skills)
  \( \rightarrow \) patterns indicate mental intention/planning
- visual-spatial ability
- letter/sound recognition (phonemic awareness)
- developing problem-solving skills (trial-and-error)
- exhibits ability to focus attention when engaged with a building task
- symbolic/abstract thinking
- utterances provide evidence of thought processes

- uses observation
- self-talk directs actions\( \rightarrow \) evidence of thought processes and intention/planning
- developing idea about concept of “balance” (physical experience informs knowledge)
- emerging/developing metacog. (“I think…”)

- memory
- self-talk provides evidence of thought processes (including intention, planning)
- uses observation
- able to count accurately (one-to-one correspondence)
- developing problem-solving skills
- develops and executes efficient mental plan for movement

- pretend play
- memory
- understands rules
- asks questions about causes

- memory
- intention (“I need this to be so tall.”)
- humor
- creates/maintains symmetry

- does not remember “blue tape line” rule
- self-talk (directs action?)
- intention/planning (creating/arranging letters out of blocks) \( \rightarrow \) first time I observe obvious intention in building
- letter recognition
- spatial awareness
- emerging literacy (“Whose name does that start with?”)
- confusion about difference between “name” and “letter” (first letter of name)

- evidence of some difficulty in language/cognitive processing
  \( \rightarrow \) (“Me: ‘What are you trying to do?’ He responds, ‘I’m trying to…pour…the.’”…)
- developing problem-solving skills (trial-and-error, asks questions)

- symbolic represent. connected to real life concrete experience
- symbolic play/representation based on concrete objects (cylinder=’hot dog’)
- humor

- memory
- intention (“I builted…I builded doze adetivers on it.”)
- appetizers?
- symbolic play/representation? If so, this highlights how I’s language and motor challenges hinder her ability to express herself and her ideas

- memory
- intention (“I builted…I builded doze adetivers on it.”)

- memory
- intention (“I builted…I builded doze adetivers on it.”)

- memory
- intention (“I builted…I builded doze adetivers on it.”)

- memory
- intention (“I builted…I builded doze adetivers on it.”)
### BUILDING BLOCKS TO GROWTH

<table>
<thead>
<tr>
<th>SOCIAL/ EMOTIONAL</th>
<th>EB</th>
<th>H</th>
<th>R</th>
<th>E</th>
<th>S</th>
<th>I</th>
</tr>
</thead>
<tbody>
<tr>
<td>October</td>
<td>-not feeling well during session (EB has a cold, is less energetic than usual and a bit subdued) -awareness of others’ and others’ interactions -frustration tolerance</td>
<td>-frustration tolerance -engages with me</td>
<td>-expresses frustration/ impatience (example of how speech challenge can affect emotion) -exuberant movement conveys happiness/ confidence -making an “attachment” to the initial structure ➔ collaboration -pride/sense (“It’s beautiful.”)</td>
<td></td>
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<tr>
<td>November</td>
<td>-facial expression indicates mood (sense of accomplishment?) -seems to modify behavior/ execution of desire in response to teacher’s implied desire/ feeling (facial expression, tone)</td>
<td>-awareness of others (and of collaborative nature of project) (“Who’s going next?”) -body language indicates emotional state (…)she stands to full height after describing her building and she smiles broadly while looking toward me.”)</td>
<td>-facial expression indicates mood (sense of accomplishment?) -seems to modify behavior/ execution of desire in response to teacher’s implied desire/ feeling (facial expression, tone)</td>
<td>-awarement of others (and of collaborative nature of project) (“Who’s going next?”) -body language indicates emotional state (“…she stands to full height after describing her building and she smiles broadly while looking toward me.”)</td>
<td>-humor -tolerates and moves on from physical discomfort (persistence) ➔ confidence seems to be affected by physical challenges -some confidence in ability (“I can step over it.”)</td>
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</table>
### BUILDING BLOCKS TO GROWTH

<table>
<thead>
<tr>
<th>January</th>
<th>mid Feb/Early Mar 2012</th>
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</thead>
<tbody>
<tr>
<td>-mood is evident (smiles, hums) -posture conveys confidence -frustration tolerance -awareness of others’ actions and how actions affect others (“…so, so, H__ does, can’t start all over again.”) -interacts with others</td>
<td>-posture conveys confidence -persistence/frustration tolerance -interested in others’ interactions -shyness(?) when asked direct questions about his structure</td>
</tr>
<tr>
<td>-frustration tolerance -engages with me (responds to questions, explains actions) → speed of expressive language processing makes verbal interactions challenging -engages with peers, exchanges ideas (speed of expressive language processing makes verbal interactions challenging)</td>
<td>-frustration tolerance -influenced by others’ ideas -adds to group effort/collaboration -feeling of accomplishment → claps her hands together when finished with portions of structure; states that she feels</td>
</tr>
<tr>
<td>-frustration tolerance -accepts limits</td>
<td>-accepts limits (ALSO: tests limits → always moves to build with the people or animals and is always limited to just blocks) -frustration tolerance</td>
</tr>
<tr>
<td>-accepts limits -frustration tolerance → “It keeps falling down.” EK seems frustrated — his movements are quick and abrupt, and his inflection is abrupt as well.” -sense of accomplishment (capability/competence)** -humor (roasting the hot dogs)</td>
<td>-accepts limits -frustration tolerance -persistence -sense of competence, confidence, self-esteem (“I really know how to make cool buildings.”)</td>
</tr>
<tr>
<td>-frustration tolerance</td>
<td>-frustration tolerance -accepts limits -tests limits (“It’s not a choice right now.” I wanders past me and out of the block area.” -expresses desires (“I just don’t wanna build, Diana.”) -pride/sense of</td>
</tr>
<tr>
<td>-accepts limits</td>
<td>-frustration tolerance -accepts limits -tests limits (“It’s not a choice right now.” I wanders past me and out of the block area.” -expresses desires (“I just don’t wanna build, Diana.”) -pride/sense of</td>
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(exchange that begins, “I’m done,”) -accepts limits (wants to be finished building but continues when he is told time is not up) -pride/sense (“She does not say anything, but her smile is wide and her eyes seem to be twinkling. She moves her arm… gesturing toward the structure.”)

January -mood is evident (smiles, hums) -posture conveys confidence -frustration tolerance -awareness of others’ actions and how actions affect others (“…so, so, H__ does, can’t start all over again.”) -interacts with others

mid Feb/Early Mar 2012 -posture conveys confidence -persistence/frustration tolerance -interested in others’ interactions -shyness(?) when asked direct questions about his structure
“good” - sets boundaries

accomplishment (“That’s A!”) (during this session, I moved from not wanting to build to being interested in building) felt pride in construction, sense of accomplishment (developed emotional investment in activity?)

<table>
<thead>
<tr>
<th>GROUP GRID</th>
<th>Group 1 (EB, H, and R)</th>
<th>Group 2 (S, EK, and I)</th>
</tr>
</thead>
<tbody>
<tr>
<td>November</td>
<td></td>
<td>[S, EK, I 11.29.11]</td>
</tr>
<tr>
<td></td>
<td>-EK and S: seek to</td>
<td>-EK and S seem to be</td>
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<tr>
<td></td>
<td>interact/collaborate</td>
<td>aware of each other and</td>
</tr>
<tr>
<td></td>
<td>almost immediately and</td>
<td>their own and each</td>
</tr>
<tr>
<td></td>
<td>both are capable of</td>
<td>other’s physical space</td>
</tr>
<tr>
<td></td>
<td>symbolic/representational</td>
<td>(body-space awareness,</td>
</tr>
<tr>
<td></td>
<td>thinking (pretend play)</td>
<td>motor planning)</td>
</tr>
<tr>
<td></td>
<td>(“I’m making a diving board, so you stop…”)</td>
<td>-I engages with me: “I put stuff on the blocks.” evidence of:</td>
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<tr>
<td></td>
<td>language is used to</td>
<td>cognitive strength (understands that I am a source of support);</td>
</tr>
<tr>
<td></td>
<td>engage, direct, direct</td>
<td>expressive language challenge; social challenge (does not engage with peers); desire to interact with others</td>
</tr>
</tbody>
</table>
- S: expresses (nonverbally) pride, sense of accomplishment (“The diving board is ready!”)
- EK and S: collaborative, cooperative play (building together on the same structure, common goal)
- S seems to ignore I → I attempt to scaffold the interaction (“S, did you hear?”) without success
- I: running, jumping, flapping her arms/hands → possible physical expression of emotion (is having difficulty communicating with peers, etc.), or maybe just sensory-seeking?
- I: physical experience of blocks
- Hammer exchange: EK and S use language to: state intention (“I’m gonna knock this down with my hammer.”); set limits (“No, no, we’re keeping it up ‘til tomorrow.”); express emotion, desire, ownership (“And that’s my diving board. And that’s something I made.”). EK responds to limits in spite of his own desire (cognitive and social/emotional strength).
- I: stacking (with precision)
- I knocks over part of group structure (motor planning challenge→ back foot knocks into structure as she steps over her own block stack) → implications for group work?
- “thirty seconds to build” (attempted scaffolding: “You need to talk to each other so you know what you’re building.”);
- EK uses language to exchange ideas (“Let’s build a prison wall!”), S uses language to make a statement about her actions (“I’m starting to build it.”), planning → collaborative, cooperative building, goal setting → “I’s head is bent and she is looking down at the block she is holding on the floor.” (participation is challenging)
- EK asks me if he can take I’s squares (does he have some idea that I/an adult will scaffold for I?); when he does ask I directly,
<table>
<thead>
<tr>
<th>January</th>
<th>[EB, H, R 1.5.12]</th>
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<tbody>
<tr>
<td></td>
<td>- H attempts to engage with R (expressive language, pretend play, collaborative spirit/sense of group identity) → “Let’s go down! We can’t go down!”; H does not directly address person/people to whom he is speaking and they do not always respond (challenge with pragmatics?)</td>
</tr>
<tr>
<td></td>
<td>- some parallel play</td>
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<td></td>
<td>- R and EB exchange: (social) language used to engage (R offers help, EB refuses it, R insists); collaboration (R: “We have to work together.”); EB sets limits clearly (“No, I don’t want help.”); R tests limits, negotiates (“Where can this go?”)</td>
</tr>
<tr>
<td></td>
<td>- EB: making a jail (symbolic/abstract thinking) → R joins in building (symbolic rep., collaboration)</td>
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<tr>
<td></td>
<td>- EB and R: language facilitates interactions (directing, questioning, negotiating); H seems to watch interactions but does not participate (language challenges exclude him?)</td>
</tr>
<tr>
<td></td>
<td>- R and EB exclude H (“No, this is only our job.”) → does she sense something? Not trust him? (H has difficulty communicating his intentions/ideas and has a tendency to knock things over)</td>
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<td>- R: strength enables her to cooperate with EB (brings a big pile of blocks to area where he is building) → collaboration enabled by physical strength, language</td>
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<td>- H: on periphery of building</td>
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</table>

|          | [EK, S, I 1.12.12] |
|          | - scaffolding: I attempt to support I physically in an interaction with EK (“I walk into the block area and use my hands to turn her shoulders and body to face [EK and S]…she is facing him while I talk to him about his building.”) |
|          | - scaffolding: I attempt to support I in her interaction with EK by asking a rhetorical question (“Isn’t that so funny?”) and suggesting that I talk to EK about his (funny) idea → I does not extend the interaction with EK (beyond agreeing with me that his idea is “silly”) |
|          | - EK uses language to communicate his (abstract/representational) idea and to extend it (“grill is too hot for people to go near”); engaging with S |
|          | - I: uses language to ask questions (“What’s happening? What did she do?”); indicates social interest → also evidence of receptive language (and maybe cognitive?) challenge (interaction was public, etc.) |
|          | - motor planning/balance/strength challenges → I |
|          | - I: emerging symbolic representational thinking (“Dis is a step.”) |
|          | - EK uses language to interact (disagree) with I (“That doesn’t look like a step.”); also uses language for regulation (“No, no. People cannot step on it.”) → I looks at EK but does not respond verbally (interaction ends) |
activity → maybe speed of exchanges is what excludes him from cooperative building?
→ some kind of language/processing challenge
-R and EB: gestural language and verbal language enable cooperation
-H: makes statement (“It has to go on the train.”) and EB asks clarifying questions → scaffolding
-R: uses language and physical movement to direct EB; EB responds and also helps her (“R asks him if he can move, and touches his shoulders to guide him out of her way. He moves a bit, helps her to get another block off of the shelf…” → cooperation, collaboration
-EB uses language to engage and direct R; she responds to him
-H attempts to engage R and EB with language (“We need to take the real train.”) → his language is not relevant to their play at that moment so he is not successful in engaging them → then he attempts to engage by doing what they are doing (places long block on stack after R does first) (his language challenge hinders him from interacting but he is physically able to engage)
-R: “Let’s get to work, guys!” → sense of group identity(?); collaborative spirit
-H knocks blocks over with foot (“But there’s not enough for the other side” → sides are not symmetrical) → this seems like a cognitive/emotional thing (H may be unhappy/uncomfortable that sides do not match), a language thing (H is unable to communicate this appropriately), and a social thing (H’s inability to communicate properly caused him to act in a way that alienated his peers)
-H responds to scaffolding of his interactions (and also uses his own communicative strengths) → helps him to be more engaged with others and others to be more engaged with him (“The real
-S and EK use language to plan, ask questions, negotiate, determine needs/intentions, make assertions, etc. → collaboration, cooperation: “S exclaims loudly, ‘I’m putting my people here!’” → “…she and EK are building and he says, ‘Okay! Now, now one of those has to be the captain. And the helper captain.’”
-I talks to EK, he does not respond or acknowledge → highlights/illuminates effect of language difficulties
-EK and S: collaborative building/cooperative interaction really fueled by language → negotiation, collaborative problem-solving, limit setting, communication of needs and desires, question-asking, directing, etc.
-I works alone (“She is placing long butter sticks in a line on top of the blue tape line.”)
-EK speaks to I about her line of blocks (likens them to a train track) → this is an attempt to engage about an idea using language → I does not respond → expressive language challenge
-motor challenge: I loses balance and falls when EK gets close to the bottom of her legs → difficult to engage with others when it is a challenge to negotiate and share space (body-space awareness, balance)
-deck of the “boat” falls over → both EK and S exhibit frustration tolerance; collaborative problem-solving (fueled by language): “‘Again! Why does that keep happening?!’ He squats and he and S begin to rebuild. They talk about where they are placing their figures and what the different parts of the boat are.”
-I builds alone → she is successful in standing two long butter sticks upright and in moving her body around and away from them (physical/motor accomplishment → she has not built with blocks this way before
train is going to pick them up. ‘…’ who up?’ H moves toward the structure and points. ‘The penguins.’ He gestures toward the penguins on top of the structure. EB turns to look at H as H is talking. He stands and brings the animals that he is holding over to the structure. EB says, ‘And these guys, too.’” → H’s language is scaffolded and the interaction becomes more collaborative (other children understand his ideas/intentions)
-H knocks over blocks (challenge communicating ideas verbally) → R, EB upset, “We don’t like that, H.” → setting limits, communicating feelings
-R: is she distracting the boys from conflict?
-following conflict with EB, R and EB playing alone. H attempts to get their attention (using language); tries to engage R (“R! How can we get this…how can we get…across?”) → R responds to H, asks clarifying questions that have the effect of scaffolding
-while R and H are playing cooperatively, H comes back to the idea of the building collapsing (is this some cognitive challenge, perseverance?) → R sets and communicates limits and then opts out of playing with H

February/March

[EB, R, H 3.1.12]
-H: “Let’s build, you two!” → using language to engage socially
-H responds to my scaffolding his conversation/interaction → he tells R and EB that one of the blocks he was building with was “not stable” and also communicates gesturally (supplements his speech) → this is a developing strength of H’s (supplements his speech with gesture; sort of scaffolds for others)
-H: challenge communicating: gets a little “stuck” when talking about the problem with the structure → R scaffolds for him by asking focusing, clarifying

[EK, S, 1.2.13.12]
-S: seeks social interaction immediately → uses language
- I attempt to scaffold interaction for I: “I, do you want to tell EK and S what you’re doing?” → I responds, “I don’t know.” → avoids interaction? Expressive language challenge (or cognitive strength: does not want to interact so says, “I don’t know”?)
- I uses (limited) language to express ownership, set limits (“That’s mine.”)
-receptive/expressive language challenges make interaction (exchange of ideas, etc.) difficult → I responds to scaffolding (“EK, it was my ‘I’.”)

(on video) → facial expression is evidence of her feeling of pride
-EK and S use language to collaborate (moving their boat structure)
-sense of accomplishment → I stacks long butter sticks and then, “I stands and rushes over to me, saying excitedly, ‘Look at doze! Look at doze!’” → sense of accomplishment is conveyed through expression and body language; I states that the structure is “a Side” (representational thinking)
-example of scaffolding: EK explains clean up to I using language and gestures/nonverbal communication
-EK and S collaboration during clean up (fueled by language)
questions (she extends the interaction and uses gesture as well): (“Which one was not stable?”…“This one?”); H responds to her scaffolding→collaboration
-R: “I wish that didn’t knock over.”→communicates feelings, demonstrates frustration tolerance and tolerance of others’ actions
-EB and R use language to engage others (each other)
-example of how distractibility (cognitive) and lack of body-space awareness (physical/cognitive) can affect interactions with others→H sits on EB’s structure→also good example of frustration tolerance and tolerance of others’ mistakes (EB fixes structure after watching H ruin it)
-H talking aloud, but unclear to whom he is speaking→highlights challenge with pragmatics
-H on periphery of social interaction; EB and R talk to each other, use body language, gestural communication, other nonverbal cues, etc.
-R: pride, sense of accomplishment (“Isn’t this a whole state building?”). “Nice work, guys!”→sense of group accomplishment, identity (collaboration/cooperation)
-H: physical action illuminates feeling of pride, accomplishment→he has difficulty communicating his emotion or accomplishment verbally (language challenge), but it is clear that he has solved a problem
-R: “Wow! Good work, H!”→generosity, collaboration
-EB: uses language to inform others of his choices and actions (“I’m putting all of the signs here.”)→collaboration
-H: another example of language challenge hindering social interaction (“Not a closed one.”)
-H: adds to structure that R and EB have both created→collaboration/cooperation→H

EK seems to lose interest
-EK demonstrates flexibility of thought (“Ooh! This looks like a seesaw! I would like to…we would like to go on that seesaw!”); also pretend play, symbolic representation→is playing on a structure built by another child (I): her contribution is important
-S: building on her own
-I resists building (“No, it’s not. It’s not time for building.”)→testing limits
-I: motor planning and other motor challenges make it difficult/awkward to build with others
-EK builds tower, I watches→she mimics action, language (EK: “This will stay.” I: “Dis will stay like dat.”)→eventually (later on in this session, I builds a tower much like EK’s)→nonverbal exchange of ideas, scaffolding (I is able to build a tower after it has been modeled for her by a peer)
-EK uses language to articulate thoughts, make predictions, state intentions (“I don’t think this will stay…”, “I’m gonna add one triangle.”)
-I: seems that building is still primarily a concrete, physical experience→makes letters (i.e. “T”), etc→seems that EK and S experience building as an imaginative, social, collaborative experience (differences in developmental level are highlighted)
-example of cognitive development→EK makes a prediction (“I don’t think if I take this one block off…”), takes a risk to test his prediction, and then reflects upon what happened (“I was right, that would happen.”)→also exhibits frustration tolerance
-I: uses language to state needs (“I just need to do something different.”)
-I builds a tower similar to EK’s→scaffolding (see above)→also, she displays feeling of
has difficulty connecting using language but is able to participate in a group effort because physical and cognitive abilities are okay -scaffolding?EB asks to use the animals, I say okay, etc. and then “R chooses an animal from the bin and holds it up in H’s face.” is she showing him that they are using the animals without using verbal language? (R has a baby sister who is not talking yet—she is skilled at communicating with others who have less skill with language) -collaborative/intercooperative interaction (mainly fueled by language): “EB…says, ‘I’m gonna put this in my zoo.’ R turns, bends and stretches, and places an animal in the zoo. She says, ‘I’m gonna put this in my zoo, too.’ H…”language here is used to: state intention, engage others (collaboration) interesting that H mirrors the language of the others (they are scaffolding for him unknowingly, and he is able to participate)

-EB: “Let’s put the cows together…”engaging R in collaborative building (using language); R responds, “Do you need…?”also collaborative, considerate of others’ needs and goals

-R: uses language to motivate sense of group identity, collaboration (“Build! Build, build, build, guys!”)

-H: expressive language/pragmatics challenge takes several moments to express that “The traffic light is red,” does not address either other child specifically, and the action goes on around him

accomplishment (“Diana! I’m done…finished building it!”)

-EK and S: collaboration (fueled by language) exchange of ideas, negotiation, cooperative pretend play (I builds on her own)

-1’s tower falls she rebuilds (persistence, frustration tolerance)

-S uses language to set limits and state desires (“Uh, uh, stop that, EK. Because I don’t want…”); EK is responsive

-1 knocks tower over again frustration tolerance begins to rebuild again (persistence!)
Permissions

Approval for Work with Human Participants

The Bank Street
College of Education

Graduate School of Education

October 7, 2011

Diana Dube

Dear Diana,

Your proposal and consent letters and forms for working with human participants for your Independent Study have been approved. You may commence your work with human participants. If you make any significant changes to your work with human participants, you need to inform the IMP Committee in writing of your plans. Please place a copy of this letter along with unsigned copies of any consent letters and forms in a Permissions section at the end of your appendix. Keep the original signed forms in a safe place for five years.

The best of luck with your study. We look forward to having the completed copy in the Bank Street College Library.

Sincerely,

Nina Jensen

Nina Jensen, Chair
Integrative Master’s Project Committee
Sample Consent Letter

Dear Parents,

As you may know, I am a student at Bank Street College Graduate School of Education, where I am completing my Master’s degree in early childhood general and special education. As part of my graduate work, I am creating an Independent Study, a requirement for my degree and a culmination of my studies. For my project, I will examine the ways in which block building and block play serve as tools for social and emotional support and development in the early childhood classroom.

In order to investigate the social and emotional aspects of block building and its importance as part of early childhood curriculum, I will observe the children building on their own and in small and large groups over the course of the school year. As part of my exploratory observations, I will engage the children in discussions about their constructions. The children’s activities and these discussions will be video recorded periodically. These video recordings will serve as the primary data for my study. In addition, I plan to use them to create a film that will enhance my final written thesis.

The name of the school and the classroom will be disguised in any published work. Any child who participates in this study will be given a pseudonym. Children whose parents/guardians choose not to allow video recordings of their children to be included in the final project will be given pseudonyms in any written work, and video recordings of these children will be transcribed to a written format.

In order to use written, video, and/or audio recordings, I need your permission. Please fill out the attached Consent Form and return it to me by October 24, 2011.

The study that results from this project will be housed in the Bank Street College Library. It will have a catalog number and will be available to students and faculty at Bank Street and to others through Interlibrary loan. The material may also be included in professional presentations and publications.

If you have any questions about this project, please do not hesitate to contact me.

Thank you in advance for your consideration, and for your children’s contributions to my work.

Sincerely,

Diana Dube

ddube@spsnyc.org
Sample Consent and Release Form

Consent and Release Form for Parent or Guardian

I am the parent/guardian of ___________________________________________________________

I have carefully read the information provided above and give my permission to Diana Dube to use (please check all that you are consenting to):

_____ Written documentation of my child.

_____ Video documentation of my child.

_____ Audio documentation of my child.

_____ Video recordings of my child in a final project that will be available in the Bank Street College Library.

I understand that my child will be given a pseudonym in any final written work, and that his/her name will be disguised in any final video or film.

I understand that the name of the school and community will be protected by pseudonyms in the actual thesis as well as in any professional talks and publications based on this research. I grant permission to Diana Dube to use the above noted documentation of my child in the thesis document and/or film and in professional presentations and publications.

I have read this release form and agree to its terms knowingly and voluntarily.

Parent/Guardian’s Name ________________________________ Date: _____________

Parent/Guardian’s Signature _____________________________ Date: _____________
Appendix B

Film