

CHILDREN TEACHING AND LEARNING
IN PEER COLLABORATIVE INTERACTIONS

by

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Chapter 1

The Importance of Studying Children's Interactions

The purpose of this study was to examine peer teaching in preschool peer group interactions in order to better understand the significance of these teaching experiences. Though many researchers have theorized about the process of children attaining knowledge from peers and the connection between cognitive development and social interaction, we do not know enough about what peer teaching looks like and the potential benefits of peer teaching through collaborative interactions. The constructs of the interactions in terms of verbal and non-verbal communication were analyzed to exhibit various teaching behaviors such as scaffolding and modeling based on the theory of L.S. Vygotsky.

Vygotsky stated that learning awakens in children a variety of internal developmental processes that can operate only when they interact with more competent people in their environment and in cooperation with their peers (Vygotsky, 1978). He stressed that children develop in a social matrix that is formed by their relationships and interactions with other children. The social environment is a major contributor to the cognition of children because of the open area of communication that exists that allows them to express and negotiate ideas as well as contribute to each other's understanding.

Vygotsky theorized that when children scaffold each other, they modify a task and offer assistance to each other to help complete the task (Tharpe & Gallimore, 1988). When children model each other, they offer behaviors to each other for imitation, thereby helping each other to see the appropriate behaviors, understand the reasons for their use, and exhibit the specific behaviors in order to put them into their own understanding

(Tharpe & Gallimore, 1988). Scaffolding and modeling typically occur between children of different levels of cognitive and/or social understanding, though it is possible for it to occur between children of the same competence level. The premise behind these actions is that one child will teach another. One child will be more capable of completing a task than another, and will assist a peer in understanding and completing the specific process at hand. A more-capable peer can also build on the competency of a less-capable peer and support a level of competence that is slightly beyond it. This behavior awakens developmental processes in children that can operate only when they interact with others in their environment and in cooperation with their peers (Miller, 1993).

As a preschool teacher, my interest in this study came from my daily observation of children observing each other's behavior and then coming together in a cohesive group to complete a task or explore a new material. Because of their bond as children together in a class with an age range of only two years, they are able to form a trust in each other through their combined faith and understanding of that social world in which they share. This trust and faith brings them together in discussion using words and actions that increase each other's level of experience with the manipulation or activity at hand. Children reinforce each other's ideas and actions and express their own knowledge from their understanding of the situation. As a teacher hoping to facilitate a positive and nurturing experience for children that gives them open avenues of communication, these interactions are priceless. But just observing these interactions from a distance and recognizing the children working together was not enough. As a teacher researcher, I felt I must analyze these interactions and contemplate the constructs and processes that I observed among the children. I hoped that this analysis would lead to a deeper

understanding as a teacher and researcher about the concept of peer teaching, what it looks like when children teach, and where these collaborative interactions lead children in their process of development. Specifically, the questions framing this study were: “What does peer teaching look like among preschool children?” and “In what way does peer teaching contribute to children’s learning in the classroom?”

Children reevaluate and reconstruct their understanding of the world in a social manner through their collaborative processes with their peers. When children collaborate on an activity, they form an equal relationship that has a common goal. They communicate their ideas and knowledge both verbally and non-verbally at a level that is eventually understood by all of the children involved (Goncu, 1993). The important transmission of social meanings and information between the children allow them to come to a shared understanding of the goal as well as the process towards the goal. This “intersubjectivity,” as Vygotsky called it, gives the children a joint focus of attention and allows them to share their perspectives together in a comfortable and nurturing environment (Goncu, 1993). As children assist each other in higher levels of learning, they are working in the zone of proximal development. According to Vygotsky, the zone of proximal development holds functions that have not yet matured in children but are in the maturation process (Vygotsky, 1978). When children assist each other in working within the zone during their collaborative interactions, they are given an opportunity to perform at levels they cannot achieve on their own.

As a teacher, I feel that it is important to create a classroom that facilitates ongoing peer interaction. Giving children the opportunity to work with their environment, their peers, and themselves offers endless possibilities in terms of what the children can add to

their knowledge. Following Vygotsky, it is important for teachers to encourage children to assist each other in activities and to enhance cognitive understanding during their explorations. They then have the opportunity to work in the zone of proximal development, which I believe is an ideal teaching-learning context. Children can collaborate to foster each other's maturation of skills that are not yet developed. In an environment where this "natural teaching" occurs, children's minds, communication, and expressions are aroused and brought to life (Tharpe & Gallimore, 1988). Teachers can observe children's collaborations and use the information they gain to better understand the process of children's learning as well as the cues necessary to foster it to the highest level. They can then use this information to promote a higher level of success in their teaching experiences in collaboration with the children.

In order for teachers to benefit from observing peer teaching, they must construct an environment that encourages peer collaboration. Cooperative activity settings in a classroom allow children to create their own path towards a specific goal. Independent activity centers are also important. These areas are more flexible and give children a more open area to work and interact. By providing these learning environments in a classroom, children are able to form a cohesive group where they can express their ideas. If teachers create a classroom environment that facilitates children's interactions and collaborations, they can benefit from observing peer models as important facilitators of higher levels of performance and understanding. Teachers will be able to observe the exchanges between the children and reinforce the influence of those exchanges by modeling them in their own interactions with the children.

When taking into consideration both developmental theories explaining children's development in relation to their social environment and the need for facilitation of peer interactions in learning environments to adhere to the social influence on development, I was drawn to study children in collaborative interactions. I hoped this study would help to illuminate what peer teaching looks like during children's collaborative interactions, and also provide insight into how these interactions assist children on a cognitive and social level. Both the process of the children's collaborative experiences as well as the product in relation to development were of utmost importance in this research in order for me to begin to fully understand the value of these interactions. When observing the process of the children's interactions, I felt it was important to note the communication between the children as well as the cues and responses that caused the children to advance to a higher level of involvement in the activity. When analyzing the product of the children's interaction, it was important to use the knowledge gained from the analysis of the process to see where the children have advanced to developmentally and what they were able to achieve because of the teaching they received from each other. The observations of the entire scope of the children's interactive collaborations fostered assumptions about the contribution of collaborations to children's learning as well as the most effective practices of teaching. I was able to form hypotheses about how these interactions promote learning and development in children. As a teacher, I used what I saw occur between the children to become a more competent communicator and teacher to the children that I teach.

Chapter 2

Peer Culture and Children's Interactions: A Literature Review

In this chapter I will discuss the theoretical positions that offered support for the questions I proposed in this study as well as the relevant literature that has looked at peer culture and the interactions that arise from children's participation in this culture. I have synthesized the developmental theories that offer explanations for why children cognitively and socially excel from their peer interactions as well as the importance of peer collaboration in the lives of young children. The literature presented in this chapter discusses previous systematic observations of peer groups and children's interactions within these groups. A critique of these studies is presented followed by a narrative on how the present study attempted to address limitations identified in studies of children's peer groups and their interactions. Finally, arguments for why this research from a teacher's perspective is necessary to better understand the children they teach is presented as well as the importance of teachers as researchers.

Children live in a social world comprised of different social matrices. Their experience in their social world is not a private activity, but a social event that involves exchange of actions by themselves and other children (Corsaro, 1992). Children enter into social matrices through interaction with other children, namely their peers. Peers are defined as a group of children who spend time together on a daily basis (Corsaro, 1992). The interaction between peers is different from those with adults because of their egalitarian stature (Hartup, 1992). In child/child interactions, children negotiate and follow each other, learning throughout how to enter into and sustain joint exchanges in the environment (Mandell, 1986). They conceive the social world through their

experiences in these interactions and establish social understandings between each other that eventually frame continuing social exchange between themselves and others within the matrices. Children have a variety of interactional relationships with their peers that have different processes and developmental effects (Brownwell & Carriger, 1991). The social exchanges in these interactions produce essential social knowledge that the children must understand in order to continue to reproduce and build upon their experiences in their social world. Children together discover a world that is full of meaning and interpret these meanings into their own understanding. These meanings become important aspects of their social and cognitive development.

Theoretical Underpinnings

Constructivist theories as well as the sociocultural theory of Vygotsky reinforce the impacts of children's participation in peer interactions. Corsaro and Rizzo (1988) discussed constructivism as an interpretive approach to childhood socialization. They emphasized that the approach stresses children's active role in their development. Children's activities are always embedded in a social context and involve children's use of language and interpretive abilities. Children interpret, organize, and use information from the environment, and use the knowledge they gain from these actions to acquire skills and knowledge. As they discover a world that is full of meaning through interactions with their peers, they help to shape and share in their own developmental experiences. Corsaro and Rizzo (1988) also emphasized the fact that children's participation in interactional routines contributes to their acquisition of language and understanding of culture. The interactions they participate in within their peer culture also help them to understand their personal culture in a clearer manner. This occurs because

when children enter into a social system, they interact and negotiate with those in the system. For preschool children, this system can be the children in their peer groups. Together, the children establish understandings that then become fundamental social knowledge that they will continue to build upon, thereby increasing their understanding of the cultural milieu in which they exist. The constant dialogue between the children as they discuss and negotiate helps to strengthen their language skills. Finally, Corsaro and Rizzo (1988) stressed that children's interactions outside of their family, namely with their playmates, effect their development. When children create peer cultures, they transform their knowledge and practices into the knowledge and skills necessary to exist in society. This occurs through the constant dialogue, negotiation, and construction of experiences between the children within the interactions. The children are able to do this at a level between them that is different from interactions with adults and is more in tune with their needs.

Vygotsky argued that in order to determine the nature and path of development in children it is essential to examine the social environment where the development occurs (Tudge, 1992). He believed that children do not develop in isolation, but rather in a social matrix. This social matrix is formed by the interconnection of social relationships and interactions between the children. They are shaped by the social organization of the society as a whole in which children exist (Nicolopoulou, 1993). Through these relationships and interactions, children collaborate towards a shared goal. As they work together, their culture is transmitted throughout the group through constant communication. Children use their actions and language as communication devices during their collaborations. The various constructs that make up each individual child's

culture are expressed and shared between the children as they discuss and contribute to each other's ideas. The children are bound as a group through their identity and union, and the sociocultural meanings that are expressed by the children contribute to each child's identity and character. Together the children carry out collective representations which lead to cognitive and social advancement in the children (Nicolopoulou, 1993). These representations consist of collaboration between the children using materials and conversations. As the children coordinate ideas, they are able to contribute to their present understanding of the situation and the information that is related to it cognitively and socially. Vygotsky argued that cognitive development not only takes place with social support from others in an interaction, but also involves the development of skill with socially developed tools for mediating intellectual activity. Skill is developed using cultural tools such as language through participation and communication. He argued that cognitive and social processes correspond in interactions due to the derivation of individual cognitive processes within the social interaction (Rogoff, 1993). The social environment is a major contributor to the cognition of children because of the open area of communication that exists between them that allows them to express and negotiate ideas as well as contribute to each other's understanding.

The Role of Collaboration

Vygotsky believed that children reconstruct their understanding of the world in a social manner through collaborative processes with their peers. He attributed the benefits of collaboration to the mutual involvement by the children, the equality of the relationship between the children when in a collective group, and the motivation of children to collaborate based on their shared understandings (Tudge, 1992). In particular,

when children of mixed knowledge levels interact in collaboration, they are able to communicate on a level that they are able to understand and share with each other. Vygotsky labeled language “a powerful and strong tool” in children’s interactions because of the shared meanings that form between children as well as the important transmission of social meanings (Tudge, 1992). Within the importance of language, Vygotsky recognized the importance of feedback between the children to promote a high level of joint understanding. As the children listen to and respond to each other’s ideas and contributions to the interaction, they are able to reinforce their understandings, thereby extending their cognitive abilities. Therefore, the feedback contributes to cognitive comprehension because of the joint understanding between the children (Tudge & Winterhoff, 1993).

Vygotsky argued that every function for a child occurs first on a social level and then on an individual level (Corsaro & Rizzo, 1988). The language between the children as well as in each individual child moves through the same process. Language begins as social between the children, labeled social speech; then they will talk to themselves about the activity, labeled egocentric speech; and last they will have inner speech and thought about the process of the activity, labeled inner speech (Tenzer, 1990). Within these levels of speech exist a higher thought process in the children that represents their individual increasing capacity to organize and order thoughts in an active exchange with the environment (Tenzer, 1990). These speech activities further emphasize the importance of language in the communication between children in their interactions.

The Role of Intersubjectivity

Vygotsky also believed that collaboration was only likely to be successful to the extent to which intersubjectivity was attained by the collaborating partners (Tudge & Winterhoff, 1993)). Intersubjectivity is created between children when they are able to come to a shared understanding of the process and goals of the activity. Intersubjectivity is ideally constructed when the children adopt each other's perspectives and transfer their ideas successfully through verbal and non-verbal communication. This requires a joint focus of attention (Goucu, 1993). This shared focus of attention is a part of a joint activity between children as they expand their existing knowledge and learn to understand new situations (Goucu, 1993). This is done through constant communication and reciprocation of each other's ideas. In a sense, the children come to a "cooperative understanding" within the interaction (Rogoff & Tudge, 1999). They negotiate their ideas and experiences and use their knowledge of the situation to contribute to the interaction. Trust between the children is important in the formation of intersubjectivity as well as their combined faith in the mutually shared world in which they are in when they are interacting (Goucu, 1993). These aspects of the interaction increase the bond and therefore the understanding between the children.

Children can attain intersubjectivity in their collaborations in at least three different ways. They can attain it by converging different meanings until all of the children's understandings of the task agree; when one child assumes the view of the other child; or when the children mutually shift between the two views and come to a joint understanding (Stremmel & Fu, 1993). Intersubjectivity between children during their collaborations enhances the experience and allows the children to communicate on a shared level.

The Zone of Proximal Development

Vygotsky also emphasized certain areas of children's interactions that specifically contribute to a higher level of cognitive understanding. One area in children that is specifically involved in increased understanding is the "zone of proximal development". Vygotsky defined the zone of proximal development 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" (Vygotsky, 1978). This zone defines the functions that have not yet matured in children but are in the maturation process. Without the children interacting and communicating, their zone of proximal development would not be effected. When children assist each other in higher levels of learning as well as how to structure and manage their own learning, they are working in the zone of proximal development. Working in this area with peers gives children an opportunity to perform at levels they cannot achieve on their own (Stremmel & Fu, 1993).

Because of the importance of interaction within the zone to increase levels of cognitive understanding, it is present in many aspects of children's interactions. Children teach each other in structured interactions, thereby shaping and directing their cognition. They teach each other through the behaviors of scaffolding and modeling. When children scaffold each other, they use their knowledge of the situation to assist each other in the specific skill of the activity. This "graduated assistance" simplifies the task for a less-capable child and allows them to master the specific skill with help (Tharpe & Gallimore, 1988). When children model, they offer each other behavior for imitation. As children guide each other through an activity towards a specific goal, they exhibit behaviors that

assist each other towards a higher understanding of the activity as well as step further towards the mastery of a skill (Tharpe & Gallimore, 1988). Children's culture continues to play a key role in their interactions, thereby affecting the zone of proximal development. Children transmit their understanding of their culture and use the contributions of others to better understand that culture in the context of the group. Culture can be considered a guide, further emphasizing the fact that the social world guides and stimulates the involved children's development (Nicolopoulou, 1993). The stimulation of the social interaction allows the children to advance to higher understanding of the cognitive world they are exploring through their social interaction.

Assisted Performance

Tharpe and Gallimore (1988) utilized Vygotsky's ideas to stress the need for education to move towards a more collaborative role between students and teachers. They argued that teaching must be redefined as "assisted performance," where teachers assist the children by providing structure and assistance in their work. Assisted performance also occurs between children when they participate in experiences together by providing information to each other that increases their understanding of the activity. This concept is related to Vygotsky's term of working within the zone of proximal development. Vygotsky (1978) believed that teaching and learning is best when it proceeds ahead of development because it "awakens and rouses to life the functions that are in the stage of maturing." These functions lie in the zone of proximal development and can be created for any domain of skill. When teaching is structured under the concept of assisted performance, it works within the zone at points where children's performance requires assistance. Assistance is best offered in interactional contexts where there is the

possibility of generating joint performance. Within a joint performance between children on a task, scaffolding can occur. Tharpe and Gallimore (1988) called scaffolding “the idea role of a teacher.” Scaffolding is similar to behavior shaping but does not involve simplifying a task, but rather holds the task difficulty constant while simplifying the child’s role in the task. The adult or more capable peer simplifies the other child’s role by means of graduated assistance, thereby working to help the child mature those skills to a point where they can perform the task on their own. This form of “natural teaching” involves interactions that awaken and arouse the children’s mind, communication, and expression to a point where they can acquire the desired skill with the assistance.

Children can move through the zone of proximal development with assistance by a more capable person or by practicing a skill on their own while in the process of mastering it. This more capable person can be either an adult or a peer. Most often in children’s social interactions, their peers take this position. A more capable peer works within the joint activity to be responsive to the other child’s level of performance and perceived need. Through this guided participation, the more capable peer offers new information or suggestions to help further the less-capable child’s goal and exhibits behavior for imitation in order to further their practice and understanding. This activity is defined as “modeling,” and offers a wider range of assistance on the part of the more capable peer. Tharpe and Gallimore (1988) stated that in educational settings, peer models are important sources of assisted performance. This coincides with Vygotsky’s view of children developing within their social world and the importance of peer interactions in fostering higher levels of cognitive and social development. This social world is comprised of children’s relationships and interactions where children collaborate

towards shared goals. It offers children an open area of communication that gives them the opportunity to express and negotiate their ideas (Rogoff, 1993). Peer models are important facilitators of assisted performance in an educational setting because teachers are able to observe the children assisting each other, and then can learn from their observations. Therefore, if teachers create a classroom environment that facilitates children's interactions and collaborations, they are able to observe assisted performance between the children. This can then give them clues as to what types of behavior they need to perform when interacting and collaborating with their students that will promote a higher level of skill mastery.

Research on Peer Culture

As children experience social events together, they form a type of "peer culture." William Corsaro (1985) defined peer culture as a culture that is constructed and maintained entirely by children. He believed that in this culture, children communally share and produce social activities patterned by a "common set of activities or routines, artifacts, values, concerns, and attitudes" (1985). These commonalities allow for a mutual relationship to form between the children which then creates affiliate peer groups within the peer culture. Peer groupings explore the environment and encounter a wide range of social experiences together. Each experience exposes the children to the different types of attitudes, beliefs, and behaviors of the different children involved (Vespo, Kerns, & O'Connor, 1996). These social experiences together form the social world in which the children interact with each other when they come together as a group. The social world is patterned and constructed as the children interact and react to each other and is maintained by the consistency of these interactions.

Peer culture stresses children's collective actions, shared values, and their place and participation in the reproduction of their culture (Corsaro & Elder, 1990). The culture that they create as a group is shaped from their individual contributions from their understandings of their culture outside of the group. Kantor, Elgas, & Fernie (1992) found that children's personality and behavior effects their position within the social matrix of the group. Each child's contribution is different based on their expression of these characteristics. The level of expression can be based on their present understanding of as well as their input into the interaction. Consequently, the level of these characteristics effects children's influence in the social experience as well as their ability to access, interpret, and be a part of the construction of cultural knowledge within the group. Their abilities to perform these tasks in interactions affect their production and reproduction of cultural knowledge (Greenwood, Walker, Todd, & Hopps, 1981).

The meaning of peer activities in their interactions are linked directly to the social contexts in which they are generated (Corsaro, 1992). In Barbara Rogoff's (1991;1993) discussions of children's social sharing of their cognition through interaction, she argues that as children utilize the materials and the environment around them to interact, they actively observe and participate in activities together. As interactions form between the peers, the children are motivated to participate together and guide each other's efforts. This process of guided participation consists of interpersonal interactions between children who hold mutual roles in a collective activity. Children actively participate and guide each other in the direction of a shared endeavor. Through this active participation children constantly communicate in order to seek a common ground of understanding from which to proceed with. The children collaborate in bi-directional nature and

structure goals together. Rogoff believes that through guided participation, children “build bridges” from their current understanding to reach new understanding through communication and form a comfortable level of support and challenge to stretch their skills. This creates a dynamic process of structuring and supporting development between children. Rogoff stated that “through repeated and varied experience in supported routine and challenging situations, children become skilled practitioners in the specific cognitive activities of their community.” Though Rogoff described the process of guided participation in children’s collaborations, we need to know more about the actual actions and communications of the children as they take steps toward a specific goal. A better understanding of what actually happens during peer collaboration in guided participation is necessary to take steps towards hypothesizing about the developmental benefits to the children that come from this process.

In their study of cultural knowledge and social competence within preschool peer culture groups, Kantor, Elgas, and Fernie (1992) emphasized the importance of communication between children during their social interactions within the social world. Constant communication allows children to coordinate and expand ideas, introduce and explain themes, and produce behavior appropriate to the situation. Children must have a communication strategy in order to be successful at these tasks. They are able to form these strategies based on their level of understanding of each other’s cognitive and social position in the interaction. With a high level of understanding, children can participate in “reciprocal involvement,” where they construct situations based on their shared definitions and understandings of the situation. Kantor et al. (1992) observed that as a peer culture was created in a preschool classroom, the children became “in tune” with the

process of social interaction within the classroom. They did this by reading situational cues in the classroom environment, monitoring their own behavior in anticipation of other's reactions, and coordinating their ideas with those of others. This, quite possibly, was their strategy. This study stressed the importance of communication between children in a group and followed the actions and communications of only one group of children in a classroom. It mostly focused on the props that showed membership in the group as well as how the children interpreted each other's communication and how it contributed to social success or lack of social success within the peer group play. The present study used the information from Kantor et al. (1992) about the importance of communication to expand on the observations of children's peer groups as well as include more peer groups in the classroom. It went beyond observing the social success of children's peer groups and analyzed the teaching that occurs between the children.

Nancy Mandell (1986) acted as a participant observer in a private day care center and observed the preschool children's play and collaborative work during their school day. She found that children monitored each other's behavior and built on that observed behavior in order to understand how certain tasks should be accomplished. This increased understanding allowed them to change individual projects into group projects by observing each other's work and following each other's leads in manipulation and construction. She found that physical objects were predominant facilitators in the social interactions because of the act of joint manipulation of an object causing the children to know and understand each other. The children exhibited verbal communication such as announcements and directions while changing their tone of voice and speech style to communicate with each other. They also used non-verbal actions such as gestures,

actions, and attitudes to signal to peers. She concluded from her observations that children are active participants in their own construction of knowledge. From these observations, Mandell came to conclusions about the process of interaction that leads to social and cognitive growth in the children. As children interact with stimuli such as people and objects in their environments, they plant the seed for social and cognitive growth (Mandell, 1986).

Kransnor & Rubin (1981) speculated that children have different goals for each interaction that they are engaged in as well as perform various behavioral strategies to achieve them. They may use different behavioral strategies to achieve the same goal as well the same behavioral strategy to achieve different goals. Children use the techniques of repetition and turn-taking to achieve their goals. Repetition is a vehicle for children to create a shared understanding between themselves and the child that they model. This offers the opportunity for dialogue which can only enhance the value of the interaction (Mandell, 1986). Within these strategies lies a process that children learn through participation in the interaction. This stems their cognitive growth as well as increases the understanding between the children involved because of the dual participation in the process by the group (Mandell, 1986). A structured interaction with a process and a goal stems cognitive growth. Children negotiate with and model each other's actions toward the specific goal. Throughout the process, children acquire knowledge of how to perform specific tasks as well as increase their interactional level as they come to understand the positions of the other children involved. Because of this process of dynamic participation, children are considered active participants in the construction process (Mandell, 1986).

Based on the theoretical ideas presented here and a critical look at the supporting literature, I investigated the process of peer teaching in peer collaborations and analyzed these experiences to form a better understanding about the significance of these teaching experiences. The investigation used extensive observations of various peer collaborations in a preschool classroom. The questions asked in this study were “What does peer teaching look like among preschool children?” and “In what way does peer teaching contribute to children’s learning in the classroom?” This study attempted to advance the present understanding of peer teaching that takes place within peer culture. Many researchers have explored the constructs of peer interaction including verbal and non-verbal communication, but have then stopped at this point. They discussed the words and actions of the children in the context of the experience, but did not delve deeper into the contribution of this communication to the children’s participation in the interaction. This study began to address gaps in the literature by looking closely at what happens to the children when they allow another peer to teach them how to complete a task or better understand a concept. It also offered a different perspective for teachers regarding the importance of observing and understanding children’s collaborative interactions. Teachers can use the information from this study to see what is involved when children teach each other, and hopefully to enhance their collaborative teaching experiences with the children that they teach.

Finally, it is important to address the fact that I believe that as a teacher, I was in the best position to examine the process of children’s collaborative interactions. My interest and motivation to study these questions came from my daily work as a preschool teacher. I found that I was constantly observing children assisting each other in their

manipulations and activities. They were able to communicate with each other in a way that conveyed the information that they had as well as their needs as an active learner. My desire to more closely observe these collaborative interactions became the impetus for this study. It gave me the opportunity to delve deeper into these teaching experiences and generate new and important knowledge about the nature of young children's peer interactions involving teaching from the point of view and methodology of a teacher-researcher. Teacher research is a systematic, intentional, and self-critical inquiry about one's work (Cochran-Smith & Lytle, 1999). Teacher research has become a prominent form of conducting research in education because of the insider-view and shared understanding of the social world that the class has become. Teachers actively initiating and conducting research in their classrooms demonstrates both a need for an insider's look at what goes on between the children in the culture and an attempt to professionalize teaching to a point where it is considered an important contribution to the understanding of children's development. This study is a foreground for more critical analyses of the process of teaching that occurs between children in their collaborative experiences as well as the developmental advancement that occurs in the children at the culmination of the interaction.

Chapter 3

Methodology for the Present Study of Children's Collaborative Interactions

The purpose of this exploratory study was to observe and explore collaborative interactions between preschool children and speculate about the significance of these experiences to the children. I focused on collaborative interactions between children as they emerged in the classroom. For example, the teaching behavior exhibited by the children could have been, but were not limited to, the methods of scaffolding and modeling from the theory of Vygotsky. Any type of collaboration between the children was considered a teaching method and any type of interaction between the children was considered a possible teaching strategy. I decided to take this path in this study because of the collaborative interactions that I have previously observed between the children that I teach. Their constant communication gave them the opportunity to express their ideas and talk about their position in the experience, which immediately contributed to each other's experiences and gave them the position of a teacher in the collaborative interaction.

The process of this study of peer interactions was as important as the final product of analysis and speculations. This was necessary because of the need to move with the flow of the children and the flexibility that is necessary when observing children in a classroom setting. The design of the study in terms of what materials the children manipulated in their interactions as well as the environments within the classroom where they interacted was purely based on the children and was different for each interaction throughout the course of the study. This flexibility allowed me to observe children in

various settings and with different types of materials and offered me an opportunity to observe a wide range of interactive networks.

Researcher Background

I had been the children's teacher for a semester and I was the teacher of seven of the children last year. I had been observing their behavior, play, and social interactions throughout my time as their teacher, and I formed a caring teacher-child relationship with them. I knew their personalities, I understood the patterns of their behavior, and I communicated on a personal level with each of them on a daily basis. The children felt comfortable with me in their presence as they work and play together, which allowed me to observe them in a comfortable manner as they interacted with each other. I constantly observed the children assisting each other in manipulations and activities as well as communicating with each other in ways that convey their needs as well as their knowledge. As a result, I became keenly interested in how children's interactions create a context for teaching and learning. Specifically, I wondered about how children assist each other through scaffolding, modeling, and other teaching strategies, and how this means of assistance performance contributes to children's learning and development.

This study allowed me to look more closely into the children's collaborations and observe their teaching of each other. Observing these experiences gave me a deeper understanding of the children's collaborative peer interactions involving teaching. Because I performed the research for this study from the perspective a teacher-researcher who has formed a relationship of trust with her children, I felt I strengthened my position as the researcher in this study. I was able to pose a more authentic level of questioning

about the children's interactions because of my mutual understanding with the children as well as carry out a thoughtful inquiry in my classroom.

I had already done initial observations of the children in my classroom in the months before the beginning of this study using a “holistic perspective.” That is, I observed the children in their entirety while in the classroom via scan sampling during the fall semester. During this period, all of the children present in the classroom were observed in their free play and activity participation. I acted as a participant observer while observing the children’s activities and interactions by observing their collaboration with each other and asking questions at appropriate times. I did this to facilitate both my own understanding of what they were doing as well as a higher level of thinking and expression of ideas in the children. I also provided materials to them when needed and listened to their conversations with each other. Though it may seem ideal to take a completely non-intervention stance when observing the children’s collaborative interactions, I felt that in this classroom environment, I was both a teacher and a teacher-researcher, so I had to take a different position that was a positive influence on the children. I was in the position to ask the children questions about their actions in order to drive them to communicate more with each other, express more of their ideas, and offer me a higher level of understanding about just what they are doing together. Again, the relationship that I formed with the children during these few months allowed me to be an observer and questioner of their interactions without influencing the children’s work. They were comfortable with me and the other teachers nearby and observing them throughout the day.

Participants

The participants in this study were children chosen from a group of 16 children in the Orange AM preschool classroom at the Virginia Tech Child Development Laboratory. The children's ages ranged from 38 months to 60 months at the time of the study. Of the 16 children, 11 children were monolingual and 5 children were bilingual; other than English, three of the bilingual children spoke Korean, one spoke Indonesian, and one spoke Chinese.

Setting

The Virginia Tech Child Development Laboratory is a university-based preschool open to all children in the surrounding community. The preschoolers attend school 5 days per week for 3½ hours per day. The philosophy of the program is inspired by the Reggio-Emilia approach and the idea that both the children's interests and the teacher's expansion of those interests construct the curriculum. The daily curriculum is generated, negotiated, and constructed by all members of the classroom, and the school advocates a strong sense of community among the teachers, children, and their families. Children are encouraged to investigate, create, problem solve, and question through planned activity and play settings. Within the classroom, the peer culture is supported by large blocks of free time for play and exploration. The teachers in the laboratory school value children's play and interactions with each other and encourage and facilitate children's interactions and social problem solving. By being actively involved in the children's play and activity settings, the teachers accept, promote, and extend children's ideas for play and exploration, and consider them competent individuals who are a key aspect in the dynamics of the classroom.

This specific preschool class observed offered the children 1½ hours of inside time for play and activity participation and one hour outside time for continued play and movement. It was during the 1½ hours of inside free time that the observations for this study took place.

The free activity time in the classroom was chosen for this study because it represented a time in the daily schedule when children and teachers had freedom in their location and behavior in the classroom. During this period of time, the children constructed their own play and explorations with a variety of materials in both planned activities as well as open play areas, and had free access to playmates and all materials within the classroom. The teachers moved freely around the room, observing all the children's participation and offering aide or additional materials to them when necessary.

Two head teachers and between 2 and 6 undergraduate students typically staffed the preschool classroom in this study throughout the 3½-hour school day. The head teachers were first year and second year Master's degree students in Child Development, and I was one of the head teachers in the classroom.

Research Strategy

For the purpose of this research, specific children were not chosen for the study. Instead, all children's dyadic and group interactions were taken into account during the main observation period. This adhered to the idea that the study was flexible and flowed with the path of the children in the classroom. The play and activity episode boundaries were defined in terms of the children's interactions at the moment of observation. I focused only on specific peer dyads and groups that formed in the classroom during the

specified free period. The study was exploratory of the interactions between the children where they taught or assisted each other in their collaboration.

The study focused on interactions that occurred in “ordinary moments.” I defined ordinary moments as moments where children came together to interact purely through their own interest and without any outside adult influence. As I observed the children interact, I attempted to have the least amount of involvement possible with them in order to allow the interaction to be purely child-constructed. I knew that this might be difficult because of my position in the classroom. The children might explain to me what they are doing as well as ask me questions or for materials. I planned to recognize these possible interactions between the children and myself and attribute them to the interpretation of the observations. I planned to not contribute to the possible teaching occurring between the children, but rather be available for aide as the children’s teacher. I found this task to be easier than expected because of the involvement of the student teachers in planning and implementing the activities. They were available to the children for questions and aid, which allowed me to take a step back and observe the children without having to interact with them or help them as they worked. Also, because I am the children’s teacher and I had formed a trusting teacher-child relationship with the children, it was impossible for me to not have predetermined views about their behaviors and personalities. I observed their behavior on a daily basis for an entire semester. Therefore, I knew their tendencies in terms of social interaction and activity choice. Instead of using this insider view as a limitation in my study, I used it to strengthen my interpretations of the children. Since I already know the children and did not need to spend time studying their social

choices and the experiences that they favor, I was able to delve right into the observations of their collaborative interactions and attempts at teaching each other.

The documentation method that I used when observing the children was created from a combination of my previous observational experiences with the children in my classroom as well as my review of other researcher's observational studies of preschool children's interactions (Eg: Greenwood, Walker, Todd, & Hops, 1981; Kantor, Elgas, & Fernie, 1993; and Vespo, Kerns, & O'Connor, 1996). The observations of the children's collaborative interactions that I made prior to the study allowed me to see how the children came together for an interaction, what typically occurred when they interact, and how the interactions were usually terminated. This information along with the review of previous research allowed me to clarify the actual interactional constructs that were used in this study.

Procedure

I observed the children in their free activity time for a period of four weeks, five days per week. I moved with the flow of the children and their collaborative experiences. Because of the children's comfort with my presence during their explorations, I performed "naturalistic observations" of the children's collaborative interactions. I was involved in the classroom dynamics as a person who provided materials and aid to children when it was necessary, though this did not happen very often because of the help of my student teachers.

An interaction episode between the children was defined as a period of time when one or more children made contact with another child and a dyad or group was momentarily formed. An interaction was considered terminated when the children moved

away from each other. To be considered involved in an interaction, the children had to engage in one or more of the following behaviors: verbal exchange, attempts to communicate, engaged listening, involvement in joint activities, and physical interaction (Vespo, Kerns, & O'Connor, 1996).

I chose to carry around a digital video camera and record the children's interactions as they were initiated. After each interaction was recorded, I brought the videotapes home and viewed the interactions. I then transcribed the interaction from initiation to termination in a bulleted form. When I transcribed these videotapes, I focused on "The Whole Child." This focus entailed that I document not only the children involved in the interaction, but all the communication (both verbal and nonverbal) between the children, any physical interaction, facial and verbal expressions, body language throughout the interaction, and the responses of the children towards each other. I also documented the date, time, area of the classroom, and all the materials involved in the interaction. Finally, I documented the occurrence of the interaction as well as how it was defined as an interaction to be used in the study. The occurrence of the interaction was defined as the activity or play situation that the children were involved in when they begin to interact. Each interaction included an initiation, which was the first, originating response beginning an interaction; a response, which was any observational sign or reply to the initiation; continuing responses, which was all additional interactive behavior exchanges following the original initiation and the response; and termination, which was when both individuals stopped using any form of communication for longer than 5 seconds (Greenwood, Walker, Todd, & Hops, 1981). I had originally planned to have my fellow head teacher watch the videotapes as well and have our agreement about the

collaboration be the deciding factor in the inclusion of it in the study. I changed this part of the study during the research process when I realized that she was in the classroom as I videotaped the children's interactions, so we were able to view them together and discuss them immediately. Our agreement at this point about the interactions decided which ones to include in the study.

When the videotaping process was completed, I analyzed the interactions for moments when one or more of the children acted as teachers towards another child as well as the possible learning that occurred between the children. I speculated at the beginning of this study that these teaching moments could be when a child offered suggestions or information in the context of the experience, gave directions to another child, demonstrated a specific task, explained the process of a specific task, or simply attempted to help the other child reach an understanding about a task or activity. I considered this working in the children's zone of proximal development. The children could accomplish this work using collaborative actions such as prompts, cues, explanations, questions, discussions, encouragement, and joint participation. I hoped to gain a larger insight into what actually defined a teaching moment between preschool children participating in a collaborative interaction as well as what were the teaching strategies that the children used with each other. I also hoped to contemplate the learning that occurred between the children during the interaction in order to better understand the impact of these teaching moments on the children's thinking. A final step in the research process was for me to speculate about the value of the interactions for the children involved. Again, the questions being explored in this study were: "What does peer

teaching look like among preschool children?” and “In what way does peer teaching contribute to children’s learning in the classroom?”

Both the reliability and validity of this study were analyzed to ensure the highest level of each. When questioning the validity of the study, the usefulness of the inferences made from the findings in the study was important to consider (Goodwin & Goodwin, 1996). Because of the exploratory nature of the study, there was a low level of inference from the interactions. Based on the interactional episode, I simply speculated about the value of the interactions for the children involved based on the teaching and learning that I thought occurred between the children. Both internal and external validity contributed to the appropriate nature of the outcomes of the study. To ensure internal validity, the interactions were videotaped during the observation period, viewed by myself at home, and then transcribed completely. My fellow head teacher and I were also able to observe the interactions together and discuss them. Only when there was an agreement as to the structure of the interaction as well as a common understanding of the possible teaching and learning between the children was the interaction included in the study. To ensure external validity, the generalizability of the study was important (Goodwin & Goodwin, 1996). The children were given opportunities to work and play together with common materials and objects found in many preschool classrooms. The true nature of the interactions through free play and activity time were also similar to those in other preschool settings. I acted as a participant observer in the classroom in order to ask questions and have a deep inquiry into the children’s interactions, and I did not attempt to not contribute to the children’s actual teaching strategies. Again, this stance was appropriate for this study because of my position as the head teacher in the classroom as

well as the further thinking and explanation that my participation facilitated between the children. This stance contributed to the generalizability because of the true nature of the interactions as child-initiated and child-constructed.

When investigating the reliability of the study, it was important to analyze the consistency of the study as well as the inferences made from the interactions observed (Goodwin & Goodwin, 1996). To ensure the consistency, I choose an appropriate environment for the study to take place. The preschool classroom chosen was one where communication and collaboration were encouraged and the children were free to create their own learning and exploratory situations without the constant intervention of a teacher. This environment fostered peer interaction between children and allowed myself as the researcher to observe these interactions as purely child-constructed. It was also an appropriate environment for me to do teacher-research because it was my goal to observe children's peer teaching strategies in their collaborative interactions. Before beginning to observe the children, the specific criteria for the interactions as well as the process of documentation through field notes was explained to and understood by myself and the other researcher. This clarification eliminated the prospect of miss-interpretation of the study's goal and process. We both observed the children's interactions, and an agreement between us was necessary in order to include them in the study. During the observations, other factors surrounding the children that may have effected their interaction was recognized and considered. These factors included other children contributing to or joining in the interaction, or an interruption of the interaction by other children, adults, and/or objects. These elements were factored into the analysis of the interactions and I made a collective decision as to whether these outlying elements were a detriment or an

addition to the interaction. From these decisions, I decided whether the interaction was still included in the study. If the interruptions did not change the flow of the interaction or the interruption was by a child who later contributed to the interaction, it was not considered a factor to dismiss the interaction from the study. Finally, each dyad or group interaction was observed by the two different researchers. Our subjective judgements and interpretations were be correlated and the reliability of the observation was decided by the combination of the two analyses. This procedure ensured inter-rater reliability, which is important when a subjective judgement is being made about an interaction (Goodwin & Goodwin, 1996).

Chapter 4

Discoveries

My intention for this qualitative study was to explore collaborative interactions among preschool children and speculate about the teaching value of the collaborations for children involved. I became interested in these experiences through my own observations of the preschool children that I teach. I watched them work together as collaborators during many different experiences and I saw that they were able to communicate with each other in a way that conveyed the information they had as well as their needs as an active learner. I began to contemplate how the assistance they gave each other contributed to their learning in the classroom setting. The desire to more closely observe these collaborative interactions became the impetus for this study. This research offered me a chance to gain a deeper understanding of the value of these experiences from the point of view and methodology of a teacher-researcher. Teacher-research offers a more authentic level of questioning into what is observed because of the position that the teacher holds in the classroom environment. I was able to have a more thoughtful inquiry into the interactions observed because of my relationship with and understanding of the children involved.

I will begin this chapter by explaining what I intended to do for this study and then describe the research process that evolved. I will then explain what I observed in the classroom during the data collection in a general sense using themes derived from the children's experiences and then move to more specific examples of the collaborative interactions that the children participated in over the four weeks. The research questions that guided my research are: "What does peer teaching look like among preschool

children?” and “In what ways does peer teaching contribute to children’s learning in the classroom?” Finally, I will summarize my findings and come to some interpretations and hypotheses about the collaborative interactions that occurred in my preschool classroom in terms of the positions the children took throughout their interactions as well as what I feel guided the children through the processes.

Evaluation of the Research Process

My aim for this study was to observe children’s collaborative interactions during their free activity time in my own preschool classroom. This period of time was chosen because the children and teachers have latitude in their movement and involvement in the classroom. The children were observed during play and informal activity experiences that were defined solely by the children’s choice to be involved. The children were observed in “ordinary moments,” which I defined as experiences where children came together based on their own interests. I chose to have the least amount of involvement possible with the children’s interactions in order to encourage the possibility that they would primarily initiate their involvement. I carried around a small digital video camera for a period of four weeks and recorded experiences where I saw children collaborating. I defined these collaborative interactions as times when children attempted to communicate with each other either physically, verbally, or non-verbally, participated in engaged listening, or were involved in joint activities. This broad range of instances where I considered children to be involved in a collaborative interaction was necessary so that no experience where children were together would be discounted without further analysis.

After videotaping interactions each day, I watched the tapes, transcribed them, and analyzed what I observed. I chose to document all verbal and nonverbal

communication between the children including their facial and verbal expressions, physical interactions, body language, and communicative responses to each other. I also documented the date, time, area of the classroom, materials used by the children, as well as the initiation, response, continuing responses, and the termination of the interactions. I planned to observe the interactions with my fellow head teacher and discuss them with her as well as transfer the videotapes into a bulleted form that included all the constructs stated above.

Role of Student Assistants

I began my research following the process I have just described. I found it easy to carry around the video camera and tape the interactions of the children as they were initiated. Because I was able to move around the room freely during this time period, I feel like I caught numerous collaborative experiences among children on tape that I might not otherwise be able to capture. During the first few days of taping, I began to realize the value of my undergraduate student teachers to my study. These students are enrolled in the undergraduate early childhood education course “Curriculum and Assessment” that helps prepare them to be teachers. This semester they were responsible for the planning of the activities that occurred each day in the classroom. They followed the same process I did the previous semester by contemplating the interests of the children as well as any new experiences they thought the children might enjoy when they devised their plans for the day. The student’s position as planners and implementers in the classroom became a strength to my research because it allowed me to fulfill my primary research position as being as uninvolved as possible with what the children experience when they collaborated. The student’s position at the center of the activities also allowed me to take

a step back and be a more careful observer. Because the students were responsible for the activities and centers throughout the room, they were near the children at all times. The children looked to them for help, materials, or support, assuming an appropriate teacher role. This immediate availability of an adult other than myself was something that I had not anticipated, and it immediately strengthened my position as a researcher in this study.

Plan of Analysis

When I began transcribing the tapes for analysis, I followed my original plan to document every aspect of the interaction. I watched the tapes and wrote down every word and movement of the children along with the initiation, responses, and termination of the interaction. After a few transcriptions, I felt that I was missing key aspects of the interaction, possibly the most important and meaningful parts to my research. I felt I was missing the true meaning of the interactions for the children as well as the process the children followed throughout the experience. I had been carefully viewing the tapes and writing down actions and phrases, but not really thinking about their meaning in the context of the interaction as well as their flow from the beginning of the experience to the end. I then decided to change my analysis process slightly in order to not miss these important aspects. I began watching the experiences first and contemplating the interaction. I then transcribed the words and actions of the children throughout the interaction, stopping the tape often to write and think about what the children were experiencing. When the transcribing was completed, I went back and re-watched the interaction for further analysis. I found that this process allowed me catch more aspects of the interaction on paper as well as truly think about what the children experienced.

Finding Themes and Choosing Specific Experiences

When I completed the four weeks of data collection, I felt that I had observed a wide variety of collaborative experiences among the children and that I was ready to think more carefully and deliberately about the true meaning of them for the children involved. I then began to re-analyze the interactions. I read through my transcriptions again, referring to the videotapes when I needed them to supplement what I had transcribed for better understanding. I made a list of all the interactions I observed. Under each title, which was decided by using a key word from the interaction to help trigger my memory, I listed the children involved and a brief sentence or two describing the basic activity behind the interaction. After this was completed I categorized each interaction. The categories were decided based on the key part of the interaction where I felt the children actually collaborated. When this process was completed, I wrote down each category and counted the number of interactions for each one. In the end I had 13 art experiences, 4 block building experiences, 2 puzzle experiences, 9 pretense play experiences, 3 computer experiences, and one problem-solving experience. It is important to note that art experiences are most likely to occur between the children because of the classroom being inspired by the Reggio Emilia approach of exploration and manipulation. Art materials and activities are extremely common and are often used in Reggio-inspired classrooms to allow children to represent their experience in multiple ways. I defined the art experiences as those that involved the children using art materials such as paint, glue, and drawing utensils. I defined the block building experiences as those where children used either wooden blocks or legos to build a structure. I defined the puzzle experiences as those that involved children working together to complete a puzzle. I defined the pretense play experiences as those that involved children using props and

materials in the classroom in imaginative contexts using physical actions and verbal communication. I defined the computer experiences as those which involved children working together at a writing or drawing project on the classroom computer. Finally, the problem-solving experience was one where two children were attempting to figure out how to work a key into a keyhole in the classroom.

After reading through the experiences in their categories, I decided to include the art and play experiences in my further analysis, with the play category split into block building and pretense play experiences. I placed both of these themes under the category of play because they both involved the children in non-literal and creative play situations; they just used different materials. These specific experiences seemed to contain the most clear and consistent interactions where children collaborated together. In the collaborative interactions that I observed, I found many instances of children acting as both teachers and learners. The children used various types and levels of communication, assistance, and support towards each other as they assumed these roles. For research purposes, the names of the children have been changed throughout the next two chapters.

What Does Peer Teaching Look Like?

Art Experiences

The art experiences in which I observed the children collaborating involved predominantly non-verbal communication. Though the children did speak to each other at times to express their wants and needs, most of the actual collaboration was represented non-verbally. They utilized materials such paint, glue, markers, and small manipulatives such as beads and string to work with in these experiences. I observed children coming up individually to the table containing the art materials and exploring them on their own.

They then shifted their eyes to other children at the table and began to watch what they were doing with the materials. Gradually, the children would become involved in the art experience by using the materials on the table. They would work alone and every so often, they would shift their eyes up to see what others were doing. At times the children would explain their work to others at the table. This communication would attract the attention of children long enough for them to listen to another child speaking and then return to their work. The words they heard from each other during these times seemed to help extend the experiences of the children involved to include more modeling and imitation.

For example, one art experience that included little verbal interaction but rather a large amount of observation and modeling occurred using cool whip paint.

Susan and Christian approached the table containing different-colored cool-whip in individual containers, paper, sponges, Q-tips, spoons, and paintbrushes. Susan used a spoon to put the cool whip on the paper and spread it from left to right. Christian observed this and modeled the same behavior using a Q-tip and then a spoon. They continued for a minute, looking only at their own papers before Susan abandoned the spoon and put her entire hand in one of the containers of cool whip and began to spread it on her paper. Christian glanced up to see Susan doing this and dipped his sponge into the cool whip. He patted the sponge a few times on his paper and then touched the cool whip on his sponge with his finger and spread it on his paper. He then put down the sponge, put his finger in the cool whip, and began to lightly touch the paper as he glanced up at Susan continuing to spread the cool whip on her paper with both of her entire hands. Christian then put the spoon in the cool whip, taped it on the paper, and

glanced at Susan spreading with her hands. He then put down the spoon and put both of his entire hands in the cool whip and spread it all over his paper. He did this all while looking directly at Susan's hands moving. Susan had put her hands in each of the cool whip containers by this point, and Christian eventually did the same and soon his entire hands were covered with the cool whip as well as his paper. He would often look at his hands and then rub them together to cover them completely with the cool whip. At one point he attempted to use the sponge again, but quickly abandoned it for his hands. As he continued to spread, Susan touched her hands to the paper, pulled it up, and then put it down and wrote her name on her paper in the cool whip with her finger. She then got up and walked to clean her hands, ending her experience. Christian looked up at her paper as she walked away and continued to spread the cool whip. He then lifted it up the same way she had done. When the table had been emptied of other children for a moment, Christian quickly wrote his name with his finger and then moved quickly away to wash his hands, stating that he was "done working."

The presence of Susan at the art table enhanced Christian's experience with the cool whip. Christian took the role of the learner in this experience as Susan became the teacher and modeled the manipulation process. Her actions using the cool whip, for example, briefly acted as a means to convey to Christian the possibilities of what he could do with it. She also acted as a support for Christian as he gradually explored the cool whip. Her action of putting her entire hands in the cool whip gave Christian the support and encouragement he needed to try new types of manipulations as well as eventually abandon using utensils. His subtle observation of her manipulation assisted him in exploring the cool whip in different ways. His slow movement from using a

utensil to both of his entire hands to manipulate the cool whip was fostered by Susan's hand exploration. Christian's observation of Susan writing her name with her finger gave him a similar idea which also terminated his experience as it had done for Susan.

I also observed in other experiences that the children would first explore the materials alone or observe the other children working as a whole, and then delve into the project when a specific aspect of the experience caught their attention. For instance, during an art activity using string attached to clothespins, trays of paint, and paper, I observed five children use each other's actions to teach them how to manipulate the materials.

Mary and Erica individually picked up a piece of string, dipped it in the paint, and began tapping it onto a piece of paper together. Simultaneously, Susan picked up the string and placed it in the middle of her paper, folded the paper in half, spread her hands across it, and then opened it back up and removed the string. While the three girls worked, Fred had sat down at the table and began to watch them work. A teacher handed him a piece of string and a piece of paper, and he took them without taking his eyes off the three girls. Fred specifically watched Susan work through her entire process. He then modeled her behavior and created a similar picture. At the same time, Susan repeated her process. Mary stopped her examination of the materials when Susan began to open her paper for the second time and said, "Can I see that?" Susan finished as Mary watched and then showed Mary her work. Mary then immediately picked a new piece of paper, string, and paint and worked in the exact same way that Susan had done. Susan observed Mary's action and also repeated the process. When Susan opened her paper, Mary did the same and stated "This one is pretty." Susan then chose another paint tray

with a different color and Mary immediately followed. Mary then repeated the behavior exactly before Susan began again. Both girls completed the process, looked at their picture, and simultaneously got up from the table and moved on to a new activity.

Similarly, when pieces of straws, glue, and paper were placed on the table, numerous manipulations were possible.

Amy approached the table and began to pick up the straw pieces and look at them. She began to simply place them on her paper in different places before she saw Mary making lines with glue on her paper and placing the straw pieces on top. Amy immediately found a tube of glue and modeled the behavior. She placed straw pieces on various glue spots and lines on her paper, carefully lining up the straws on the glue similar to Mary. When she completed the process, she pointed to her paper with a smile on her face as she looked at her teachers, showing her happiness at her accomplishment.

The presence of the children together during the previous two art experiences allowed them to explore the materials in more ways than if they had worked alone. They offered support to each other as they explored new materials and tried new avenues of exploration. During the string painting activity, for example, Fred's observations of Susan gave him an idea to follow, which facilitated his own exploration of the art materials. Susan also extended Mary's exploration by modeling a new way to paint by using both the paper and the string together to create a piece of art. Fred and Mary assumed the position of learners during different parts of this collaboration while Susan acted as the teacher. Their observations of her actions helped establish the learning process. During the straw activity, Amy's observation of Mary using the glue to make guiding lines for the straw pieces offered her a possibility for manipulation and allowed

her to use the materials to create a picture of her own. Mary acted as Amy's teacher by showing her a way to participate in the activity. Amy, in turn, learned a new skill and created a drawing that she was proud of.

In these exploratory art experiences, the amount of verbal communication between the children was limited. The children relied on observation of each other's actions and then interpreted them in a way that allowed them to begin their own exploration. One possible explanation for why this occurred could be because all three of the activities were new experiences for all of the children in the class. As each child manipulated the materials in their own way to begin their exploration, the different manipulations became teaching strategies. The children learned the strategies and picked up information from each other through observation and modeling. Vygotskians consider these actions as guided participation or assisted performance among peers and a tacit structuring of communication within a reciprocal context.

The student teachers held the position of assistant in these art experiences. This position did not effect the children's exploration. One student teacher sat at the cool whip and string painting activities to provide materials and encourage the children to explore the art activity. The children explored the straw art activity alone. The student teachers simply removed paper when the children were done and passed paper and trays to them as they explored. They complemented each of the children on their work and simply sat and listened and observed the children's experience. This level of participation by the student teachers shows that when adults do not impede on children's activity in an authority role, there is perhaps more opportunity for peers to be in a more equal

participation status. This allows them more room for observation and uninterrupted opportunity for exploration and sustained activity.

I was also able to observe two collaborative interactions involving markers and paper. These experiences included more verbal communication combined with acts of non-verbal communication. The boys involved in both experiences had ideas of what they were drawing individually as well as together. They worked off each other's drawings and ideas to create a more intricate picture using their combined efforts.

During one drawing experience, three boys used their combined efforts to recreate a picture.

Dan, Christian, and Mark spotted a specific screen saver on the computer. The picture is of a haunted house and it's "spooky" (as the boys called it) surroundings. The boys gathered around the computer screen and began to contemplate out loud what each object was and what could be happening in the picture. They then decided to draw their own haunted houses. They all progressed down to the art table and picked up markers and paper. Mark and Dan begin to draw and Dan stated that he was drawing a skeleton.

Mark then looked over at Dan's picture and then back to his own and said that he was drawing "Spooky the Skeleton."

At this time, Christian was observing the boys and not using any art materials. Dan began to make spots for "stars" next to the "moon" that he had drawn by tapping the marker on the paper, which caught Mark's attention.

Dan said, "I need yellow for the moon."

Mark asked, "Is the moon going away?"

Dan answered, "No, the moon is just staying" and pointed to it on his paper.

Mark then made a spot using the same tapping motion that Dan used and then drew a similar shape to Dan's moon.

Dan said, "The skeleton is running," and pointed to the figure that he had drawn in the window while looking at Christian.

Mark then stopped and looked over at Dan's paper.

Christian stated, "Draw the tree first."

Dan began to draw again and Mark looked over again at him drawing.

Dan stated, "There's a branch...here's the leaves...more branches...and that's the owl's home."

Mark and Christian intently watched Dan draw these objects. When Dan finished this part of his drawing, Mark shifted his focus to his paper and made a few more lines and spots.

After a brief pause while Christian removed his beaded necklace, he joined the drawing experience. He took his own paper and marker and began to draw. I asked Christian what he was drawing and he said that he did not know.

Dan continued to draw his own picture. Christian tapped him on the shoulder and said, "Look, I drew the top."

Dan looked over and said, "A sock...wow, that's good," and returned to his drawing.

Christian said, "It's not a sock."

Dan said, "It's not a sock...what is it?" He then said, "It looks like a house."

Mark looked over at Dan and Christian said, "Draw the side where the skeleton is," and repeated himself when Dan did not respond.

Christian continued to draw and Mark pointed to Dan's drawing and stated, "That looks like a jail."

Dan responded, "That's a window. There are a lot of windows." and continued to draw.

Dan stated, "That is a door and it's open."

Christian then looked over and stated, "Not really in the door."

Mark watched Dan draw and pointed to his picture and stated, "That looks like one of the ghosts."

Christian tapped Dan on the shoulder and said, "Look at my thing. I drew the curly thing like on the screen up there," and pointed towards the loft where the computer is.

Dan responded, "Oh, that's how you draw it. The twirly thing looks like this," and began to draw it on another paper. Christian and Mark watched him intently.

Dan stated, "Like that, see?" and pointed to his drawing.

Christian then began to make spots as Dan had previously done for stars and stated, "Those are the stars."

Dan looked over at Christian's drawing and then returned to his. The boys then got up from the table and prepared to go outside to play.

During a second drawing experience, two boys worked together to create a collaborative drawing.

Christian and Derek were drawing with markers on a large piece of paper on the floor. Christian started to draw a "man" and pointed out the head to Derek, who was watching him draw closely.

Derek looked closer and asked, "Is it a big head?"

Christian then asked him, "What do you want me to draw on him?"

Derek answered, "I want you to draw right here."

Christian then drew a large line going outward from where Derek had pointed on the paper.

Derek said, "And make a tail," and Christian drew another line near his last one, this time very short.

Derek said, "I want the tail to be longer than this," and pointed to the first line. Christian responded by drawing a line to the end of the page.

Derek pointed to it and said, "That's a monkey," and picked up a marker and began to draw thick lines near Christian's last line. As Derek drew he said, "I'm making a tail. A long, long, long...."

Christian interrupted him and asked, "Can you draw a truck?"

Derek replied "No."

Christian then said, "I can. Do you want to see me?"

Derek replied, "Yeah," and began to watch Christian draw. Derek stated, "It's a monkey."

Christian replied, "Do you want to see me draw? This is my truck."

Derek watched him draw. He then went back to drawing next to Christian and pointed to his picture and stated, "This is his gun."

Christian replied "You don't even need guns."

Derek then looked at what he had just drawn and said, “This is his feet,” pointing to the original “gun.” The boys make monkey noises while pointing to their pictures. They then put down their materials and moved away from the activity.

The two previous drawing experiences exemplify teaching and learning that can occur between children when they express their ideas together and combine them to form a collaborative experience. The ideas that the children verbally as well as physically expressed during these interactions acted as communicators in the learning process. Their questions, answers, and explanations formed the teaching strategies that they used to support each other’s participation as well as extend their individual drawings. When Dan, Mark, and Christian began to draw their interpretations of the haunted house, Dan was the primary teacher. He modeled drawing behavior as well as supported Mark and Christian in their attempts to draw objects similar to him. When Mark and Dan asked questions about their observations of Dan’s drawing, he explained what he drew in order to support their understanding and assist them in replicating the same objects. He showed them specific drawing actions, encouraged them to draw, and even recognized their drawing efforts. These actions helped to extend their drawing experiences to create more detailed pictures. Derek and Christian’s ideas were expressed through their collaboration and they utilized each other to draw specific objects. Derek made suggestions and asked questions that gave Christian the opportunity to show him how specific objects were drawn as well as supporting his efforts in adding to the collaborative drawing. Their reciprocation of each other’s ideas and drawings acted as their teaching strategies. They mutually shifted from teacher to learner using these strategies as they shared ideas and recognized each other’s efforts.

Play Experiences

Block Building

I also observed children collaborating while building with different types of blocks. These experiences involved a large amount of verbal communication and included both physical and verbal direction between the children involved. The experiences normally began with one or two children deciding to work on building a certain structure and other children observing them and wanting to be involved. The children always worked with a general plan in mind while using their collaborative efforts to complete the building process.

In one specific interaction, I observed a child directing a peer in a building process.

Fred and Mary approach the porch and move towards the stack of large rectangular and square blocks. Fred stated, "I want to build a house but I don't know how." Mary replied, "I'll show you." Mary then took the lead in the building process and Fred followed her physical and verbal directions throughout the entire experience. Mary began by guiding Fred towards the stack of blocks and showing him which ones to choose. She then brought him to the open floor to show him where each one should go in the house building process. Mary would use physical actions to show Fred which block to choose as well as where it would go. She would also use verbal directions such as "Put that one right here," "Put that one on top of this one," and "We need to put one right here." Each time that Fred approached the stack of blocks, Mary would observe his movements and follow him. She would then move to wait for him by the house. Mary was very specific in her directions to Fred. She would distinguish between the square and

rectangular blocks by pointing to them in the structure and asking Fred to get the specific one that she pointed to. A few times Fred would bring the wrong block and Mary would use phrases such as “Fred, you can’t put this one. We have to use one of those.” When she placed a block she would say, “There, that’s the right one.” Mary used hand movements to signify the area that she needed Fred to put the block down and she would slide the blocks fully in place if he had not done so and explain why the block belonged in that position to create the structure of the house.

In one part of the interaction, Mary stated that Fred should “Put that one on top of this one,” as she gestured to the block that Fred was holding. She then moved to the structure to show him where it belonged. She then repeated, “Put that one on top of that one,” while tapping the structure in the appropriate spot. Fred then placed the block down and Mary shifted it into place. She then said, “You see, it makes it go up.” Fred looked at the structure and Mary gestured to the empty space next to it and said, “And you do one right there and you put it up to here and then you put it upper.” Her hand movements showed that Fred needed one of the larger blocks to place standing up in the spot. Mary then got up and said, “Let me show you Fred,” and walked to the block pile.

When Fred brought blocks over to the structure, he would glance at Mary before he placed them on the ground, while he was sliding them into place, and when he had completed the placement. Each time he added to the structure, he would look in her direction for approval. Mary watched all of his movements and would step in and redirect him if he was not building in the correct way. When the house was completed to both the children’s satisfaction, they sat inside it and then left the block area for a new part of the classroom.

Throughout this experience, Mary held the role as the teacher while Fred acted as the learner. Fred looked upon Mary as both a director and a supporter as he learned to build a house. Mary spoke to Fred in kind words when both directing and correcting him, but was firm in her role. Fred did not argue with her ideas or directions, and often became excited with her building choices as well as the prospect of what their structure would finally turn out to look like. Mary would often explain her reasons for each specific block as well as attempt to show Fred exactly where the next block should be placed in order to help him to visualize her plan. Mary also slowly transferred responsibility in the building process over to Fred. She moved from watching him choose the blocks she had requested closely to simply asking him to bring a block over from the stack. As the experience progressed, Mary began to use phrases such as “Fred, you know where to put that” while allowing him to place the block on the structure. Fred gradually seemed to learn to the building process and would immediately follow Mary to the block pile and choose the same block as she did. He also began to recognize the pattern of how Mary wanted the blocks situated and caught on to her process and followed it well. Fred also acted as an aide to Mary when she was unable to carry more than one block, telling her “I could pick that one up too...even with one arm” when she said, “This is so heavy” while carrying blocks to the structure. Mary went from giving specific directions to asking questions as a way of assessing Fred’s understanding of the task. Her gradual transfer of responsibility to Fred communicated a positive response that he was a successful learner. She still, however, supported all of his actions throughout the building process, therefore acting like a strong teacher.

While the previous experience involved a great deal of direction and a specific building process, I also observed building experiences where children participated in reciprocity as they worked off each other's ideas and block choices to create structures. A general plan was still utilized that included the goals of the process, but less one-to-one direction was used.

Derek and Nathan were building on the floor with small blocks when Derek stated, "We are building a house at night."

Erin and Misty were standing nearby and heard Derek's proclamation. Erin then looked at Misty and stated, "We could build a house that we could fit in." Misty and Erin began to pick up blocks as Nathan approached them.

Misty said to Erin and Nathan, "We are going to build our house, OK?"

Erin came over with a tall, thinner block and stated, "And this is the doorway." Nathan leaned over and picked up a block with a clear plastic center and said, "This is a..." and Misty said, "A window."

Nathan replied, "Nope, it can't open, see" and shows her that it cannot open like a window. He repeated this two more times while running his hands across the plastic surface.

Erin suggested that he pretend he is opening the window.

Nathan looked at the block he was holding and said, "Ok, sure," and began to make a motion similar to if he was actually opening window as Erin watched him utilize her suggestion.

Nathan said, "But this is not opening." He then reached into the bin and picked up a block that had a sliding clear piece that did open. He showed Erin and said, "See, this does open" and showed her the opening movement.

The children then began to gather blocks together and started to build. As the children proclaimed that they needed specific blocks, another child would hand them what they needed and use phrases such as "You need this one too," and "You can use this one because that one does not work." This carried on for a minute until the children were called to a new area of the classroom.

Another experience that involved children building off each other's ideas and working together in a building process was when I observed the children begin by building a house and slowly change to building a playground.

Erin, Sara, and Mary came together to build a house with the large blocks. Mary suggested that they use two slanted blocks to make a slide.

Sara immediately said, "A slide for a playground."

Erin replied, "I know, we can make a house with a playground."

This then began the process of building structures found in a child's playground. Mary and Sara began to test their slide and explain to other children how to sit at the top and slide to the bottom what it is when they approach the structure.

Erin observed the girls working with their slide and began to drag flat blocks over to the area where the slide was built. She then stated, "I am building a seesaw," which got the attention of the other two girls. She arranged the blocks into her seesaw and began to test the movement of the blocks. As she manipulated the blocks, she explained to

Mary and Sara how to sit and move the blocks up and down to create the effect of a seesaw.

Sara asked, "Where can I ride?"

Erin replied, "You have to sit down on this" and placed her hand on the area where Sara was to sit. Sara and Erin then sat on opposite ends and moved up and down in the motion of a seesaw. The three girls then left the area for snack.

The previous two block-building experiences allowed the children to combine their ideas and efforts to create structures. Using a combination of verbal and non-verbal communication, the children were able to express their ideas as well as direct each other towards the completion of a process. This reciprocity that occurred acted as the children's teaching strategy as they built together. This building off of one another's ideas suggests the importance of shared problem solving and intersubjectivity in effective peer interaction. The children monitored each other's thinking and reasoning, and as a result, enacted mutually coordinated roles in attempting task solutions (Rogoff, 1990). The coordination of roles and perspectives between the children allowed them to form a shared understanding about the activity: this is intersubjectivity. The children formed intersubjectivity between each other as they expressed and negotiated their intentions for the process with their understanding of each other's intentions. The children played off each other's ideas in order to successfully build together. When Erin, Misty, Nathan, and Derek build simultaneous houses, they used reciprocity as they suggested blocks for each other to use as well as offered each other additional blocks to add to their building. Derek's statement that he was building a house at night allowed Erin to make the decision to also build a house as well as begin to associate specific blocks with parts of a

house. By building off each other's observations and statements, they acted as support for each other and mutually participated in the building process. It was also evident that children showed evidence of "prolepsis" in their collaborations. Prolepsis occurs when a child anticipates some as yet unprovided information from another child. This anticipation creates a challenge for the listening child that forces him or her to construct a set of hypotheses or assumptions about the next steps of the other child and create strategies to effectively collaborate with him or her (Stone, 1985; Stone & Wertsch, 1984). Erin identified the block she was holding as a doorway. Nathan followed by holding up a different block and began to identify it, possibly as another part of a house. Misty anticipated Nathan's thoughts and immediately identified it as a window, which is a part of a house. Erin listened to their exchange and immediately helped Misty by encouraging Nathan to pretend it was a window when he expressed the fact that the block would not suit this part of a house. The children were able to utilize the "window" in their building experiences, whereas if Misty had not defined it as a window, it would have been discarded. Mary's simple statement that she was going to build a slide during the process of building a house triggered Sara's idea of a slide for a playground. This began the girl's process of combining the building of the house and a playground as well as the extension to building a seesaw.

Pretense Play

A final key category of peer collaboration has occurred during pretense play experience. Vygotsky believed that this type of imaginative play began during the preschool years and called it "pretense play." He also suggested that development occurs in play and that it is the leading activity in development during these years (1978). In this

play, children act out themes, stories, or roles that express their understanding of their society (Nicopoulou, 1993). The children in my preschool classroom have been involved in various types of animal play throughout the year. We have many different toy animals in the room for the children to play with including reptiles, mammals, and dinosaurs. The undergraduate students decided to use this animal interest in their activity planning by placing the different animals in water, with playdough, and with Gak. The children used this opportunity to extend their animal play using these materials. Within these new play experiences, the children shared their knowledge of the animals they were playing with as well as discussed possible actions for the animals to perform. These interactions gave them the opportunity to act as teachers and learners during their exchanging of knowledge and ideas. The children also had the opportunity to maintain intersubjectivity through collaboration in the play scenarios. The acted as teachers and learners who tacitly structures communication through the exchange of their knowledge and ideas.

In one instance, dinosaurs were placed on the table with Gak. Derek and Misty approached the table and began to manipulate the dinosaurs. Derek picked up a clump of Gak and began to roll it out. Misty shifted her attention from her dinosaur to Derek's actions and immediately picked up a clump of Gak and began to roll it out in the same motion as he had done.

Derek then put the Gak in the mouth of the dinosaur he was holding and stated, "Look at this. He's eating a small dinosaur. He's gobbling it up. He's ripping it apart."

Misty looked up from her rolling when he spoke and watched him manipulate the Gak and the dinosaur together.

Derek then said, "These dinosaurs are eating. They are eating meat."

Misty then placed a small piece of Gak in front of Derek, moving it towards him in a hopping motion and making a noise as if an animal was hopping. Derek took the Gak and stuffed it in his dinosaur's mouth. She then picked up her own dinosaur and began put Gak in it's mouth.

Derek looked at his dinosaur and then at Misty and said, "Look how much. They are taking apart the land. They are eating the land."

Misty continued to stuff the Gak into her dinosaur's mouth. Both children then made a large ball of Gak and called it food. Misty then put down the ball and resumed stuffing the Gak into the mouth of the dinosaur. Derek noticed her actions, stopped making his large ball, and stuffed the Gak into his dinosaur's mouth using the same motions as Misty. Both children then picked up their respective animals and walked to a new area of the classroom.

Misty and Derek observed each other's actions while playing with the dinosaurs as well as shared ideas with each other verbally and physically about how to manipulate the Gak to fit the path of what they wanted the dinosaurs to do. They moved back and forth from teacher to learner during this collaboration by attending closely to each other's behaviors. Though Derek appeared to be the main teacher and Misty the main learner throughout the process, roles shifted and were negotiated through reciprocal involvement. When Derek began to roll the Gak, Misty observed and then modeled his behavior. When Derek began to discuss dinosaurs eating meat, Misty used a hopping motion to pretend the Gak was an animal, showing her understanding of this concept. When Misty returned to their original feeding actions, Derek observed this and immediately joined her. The

children supported each other throughout this process as they explored the process of the dinosaurs eating. Their teaching strategies lay in their physical feeding actions.

In another imaginative play experience, the dinosaurs, alligators, and sharks were also placed in blue water for the children to explore. The children were also given sponge capsules to “hatch” in the water. When the capsules are placed in water, sponges emerge after about a minute in the shapes of dinosaurs.

Derek and Dan approached the table and began to hatch the sponges. Derek picked up an alligator and Dan picked up a shark. Dan began to put the sponges in the shark’s mouth while Derek watched his movements.

Dan stated, “Look at this. He is full of meals underwater.” He then dove his shark underwater.

Derek then began to put the sponges into the alligator’s mouth that he was holding.

Derek stated, “He’s eating a bunch.”

Dan responded, “A bunch? What’s a bunch?” as he stopped moving his shark in mid-air and suspended it over the water as he looked at Derek’s movements.

Derek replied, “A great bunch,” and both boys resumed moving their animals through the water.

Dan continued to move his shark underwater and said, “Look at this shark!”

Derek then stated, “He’s going to eat a baby lizard,” and picked up a green sponge.

Dan looked up from his play and responded, “A baby lizard?”

Derek responded, “Did you know that reptiles are lizards?”

Dan looked from Derek to his animal to the rest of the animals in the tub, and then continued to feed his shark. The boys continued this play for a few more minutes, moving their animals through the water and then moved on to a new activity.

In this short interaction, the two boys shared knowledge with each other that enhanced their experience as well as gave them the opportunity to ask questions to further their understanding. Therefore, their listening and responding acted as their teaching strategies. Dan assumed the role of the teacher by modeling the behavior of “feeding” the shark and alligator the dinosaur sponges. Derek modeled Dan’s behavior as the learner, but quickly moved to the teacher when Dan asked him to explain his ideas. The boys together reciprocated each other’s statements and actions as they collaborated in this experience. Their collaboration enhanced their play experience to include more meaning for the objects being manipulated. Using verbal communications and physical actions, they enhanced the information used in the interaction and provided each other with a higher level of understanding of the animals they were manipulating. In this way, the children served as cognitive facilitators for each other.

In What Ways Does This Teaching Contribute to Children’s Learning in the Classroom?

The main categories of art, block building, and pretense play represented periods of time where children in my preschool classroom participated in collaborative interactions. In these interactions, the children used various types of communicative strategies and support to establish intersubjectivity and express their ideas and skills and share them with each other. Each of the interactions provided the children involved with an opportunity to co-construct a teaching-learning context, in which they acted as either a

teacher or a learner or both concurrently within their peer culture as they expressed and shared these concepts.

What is the value of these experiences to the children involved? How do the collaborative experiences that the children participated in contribute to their learning in the classroom and influence their future thinking? It is important to realize the impact of each verbal and non-verbal communication and support on each of the children in the interactions. In the previous interactions, I have observed children giving directions, asking questions, sharing ideas, anticipating and expanding on each other's ideas, observing each other's actions, and trying new avenues of exploration. The children have supported each other's experience by observing their actions through attentive listening and careful watching; offering encouragement; modeling behavior; and gradually giving each other more control over a situation. The collaborative interactions were reciprocal and mutually beneficial to the children involved, and each child's experience was enhanced by another child's participation in the same experience. This represents the value of the experience to the children; the obvious contributions to the children's cognitive understanding of a material or an experience as well as a social understanding of what it means to participate in a collaborative interaction and work concurrently with other children in a mutual episode. It shows how it is possible to share ideas and knowledge with each other while at the same time taking in and attempting to understand new information. It expresses how to participate equally in an interaction regardless of prior knowledge or experience because of one's position in a peer culture that is framed by reciprocation and mutual involvement and experience. This represents the value to the

children involved as well as the obvious developmental steps they are able to take through collaboration with and assistance from each other.

The apparent value and developmental contributions of these teaching and learning experiences are consistent with social constructivist theories and the theory of Vygotsky. In particular, social constructivism advocates that children actively participate in their own development in a social context. This stresses the importance of peer interactions in children's cognitive and social development. In each of the interactions I observed the children using their language and communicative strategies as a means to be actively involved in the collective representations. They expressed and coordinated their ideas, which increased their level of understanding of what they were experiencing. And, they were actively participating in the sharing and obtaining of knowledge and ideas.

Vygotsky argued that teaching and learning is an inseparable and dynamic process through which children utilize the tools and strategies introduced to them in these experiences in interactions with each other. This was obvious throughout the interactions in this study. The children were constantly shifting from teacher to learner, and this reciprocity allowed them to constantly share and contemplate their own ideas and information from each other. The children assisted each other in discovering new ways of manipulation, how to extend drawing based on their own knowledge, build structures and coordinate them with other children's building, and understand the position as well as the actions of materials in play experiences. These were the teaching strategies present in the collaborative interactions, and they would not have been possible without the reciprocal learning that occurred between the children. The teaching and learning dynamic was also not possible without the children coming to a shared understanding, or

“intersubjectivity,” about the experience. Through careful observation and questioning, each of the children came to understand the experience as well as each other’s position within the interaction that they had chosen to participate in. This understanding allowed them to actively participate and follow the intended process on an equal level with their peers.

As Rogoff (1990) suggests, the equal status needed for reciprocal involvement is often impeded by the adult’s authority role in the classroom. The directions, questions, answers, and “idea swapping” allowed the children to work within the “zone of proximal development.” The work in this area allowed the children to obtain new knowledge and information from each other and their collaborative work that they were able to test and practice almost immediately. Each interaction was mutually beneficial to every child involved, though the benefit was different for each one. Some came away from the interactions with an entire new set of skills or ideas, while others had knowledge added to their cognitive and social repertoire.

It is even possible to say that within these types of collaborative interactions exists a certain level of “contagion” between the children involved. This contagion seems to grow as the children hear each other’s proclamations or observe each other’s actions. This listening and observation enters the children’s cognitive repertoire and often gives them an idea of their own that can either extend their peer’s experience or allow them to create their own experience in the situation that can eventually lead to collaboration and more sharing of ideas. Regardless of what the outcome or further processes are, the contagion between the children exists because of the equality that the children feel in the

peer culture they have created. The children in this peer culture share a mutual position as active participants that have a faith and trust in their relationships and interactions.

Chapter 5

Discussion

I chose this research in the hopes of gaining a higher level of understanding about the significance of peer collaborative interactions to the children involved. Specifically, I was interested in the teaching that occurred between and among children and the learning that would impact their thinking. By videotaping collaborative interactions and analyzing them for moments of teaching and learning, I was able to delve deeper into not only the interactions themselves, but also the peer culture that the children have created and have used to facilitate these constant interactions.

This research was framed by the questions: “What does peer teaching look like among preschool children?” and “In what ways does peer teaching contribute to children’s learning in the classroom?” When analyzing the peer collaborations that I videotaped, I found that I was able to see small moments of peer teaching throughout the interaction as a whole. By contemplating the acts of teaching as well as the responses of the perceived learners, I was also able to study the learning experience of the children when they used their peers as teaching aides. Using these analyses, I was able to then speculate about the possible value of the learning experience to the children involved based on their participation in the activity or experience.

I began this study using previous research on peer culture and constructivist theories as a basis for my ideas about the value of studying peer collaborative interactions. I justified my own theories about peer teaching and learning by explaining the value of social interactions on children’s learning as well as the process of children’s social interactions in terms of their developmental gains. Now that I am at the

culmination of my research, I feel that I am able to use my findings to support the research that I have read by other researchers as well as extend on their ideas to open up new avenues of study about collaborative interactions between preschool children. Many researchers have explored the constructs of peer interaction as well as the words and actions of the children involved in the experience, but they have not contemplated the contribution of these communications to the children's participation. Previous research tells us little about the cognitive and communicative aspects of peer's interactions. This study acted as a beginning exploration of this idea of the value and impact of this experiences to the children involved while focusing on specific acts of teaching strategies and perceived learning in the children.

Significance of Study to Literature

William Corsaro (1985) defined peer culture as a culture constructed and maintained entirely by children. He spoke about the mutual relationship of the children in this culture which allows them to experience the world together and use the knowledge gained from those experiences to form their own beliefs, attitudes, and behaviors. The mutual relationship of the children in this study as explorers, learners, and players together in the classroom allow them to feel comfortable enough to share in an experience together and use each other as guides in learning. The obvious comfort between the children in the interactions I observed existed because the children have formed a culture together that allows them to explore and learn freely as well as use each other as teaching and learning guides. The children observe each other's actions and manipulations, ask questions to define concepts or motivations, and build off each other's ideas and actions to create a more intricate and collaborative experience.

In the collaborations that I studied, the children were active observers of each other's behavior as well as active participants in the experiences. Barbara Rogoff (1991; 1993) argued that children actively observe and participate in activities together. As interactions form between children, they become motivated to participate together and guide each other's efforts. This "guided participation" occurred throughout the drawing experiences when the children watched each other draw and then asked questions as well as added their own drawings to the experience. The mutual roles that the children held in these interactions allowed them to interact on a personal level as contributing peers to the final product. In the block building experiences, the children actively participated together in the building process towards a common goal of a house and a playground. The children constantly communicated about their personal building choices as well as that of the group, forming a common ground of understanding about the process and goals of the experience. Rogoff described children in these types of interactions as moving from their current understanding to a higher level of understanding through their communication. The children involved in these building experiences worked bidirectionally and structured goals together. Together they supported each other's development throughout the process as collaborators. This role allowed them to take the positions of teacher and learner.

This research also provided more information about the process of guided participation between children and the teaching and learning strategies that exist within these guided experiences. I was able to recognize and discuss the specific actions and communications that occurred between the children as they worked together towards a common goal. This offered a better understanding of what actually happened in these

collaborative experiences, which allowed me to hypothesize about the learning that occurred as the children constantly took the role of a teacher. I was also able to contemplate these interactions in terms of the opportunities that children have to use the presence of each other to increase their understanding of their social world. Rogoff (1990) suggested that peer interaction may provide children with the opportunity to practice and extend ideas, participate in role relations, and observe more skilled peers who are likely to be more available as resources than adults. Throughout these collaborative experiences, the children actively negotiated their ideas and made their intentions known to their peers as they explored the materials and activities. Through this expression and negotiation, the children developed insights together about new and creative ways to use their ideas in further experiences.

In each of the peer collaborations that I observed, the children used either verbal and non-verbal communication or both to observe and interact. Kantor, Elgas, and Fernie (1992) stressed the importance of communication between children in their social interactions in order for them to expand ideas, introduce and explain themes, and produce appropriate behavior for the situation. They explained that these are communication strategies that allow children to read situational cues, monitor their behavior, and coordinate their ideas with each other. In the art experiences, the children used mostly non-verbal communication in the form of observation and modeling when manipulating the paint, string, and straws. In the drawing experiences they used mostly verbal communication in the form of questions and explanations. The children's various communications allowed them to be actively involved in the experience as well as use each other as guides in their working processes. The block building experiences required

the children to listen to each other's ideas and follow each other's cues in order to produce behavior conducive to the situation. The children coordinated their ideas in order to build towards a specific goal and theme as well as used each other's ideas, directions, and suggestions to frame their own involvement. The pretense play experiences centered on verbal communication between the children. They used their own ideas as well as each other's to expand the play experience to include more dialogue and deliberate action. The children also coordinated their ideas together to create a more involved process for the animal play. This "reciprocal involvement" between the children as they played allowed them to construct the interactions based on their shared understandings of each other's presence in the experience as well as their constant communication.

Nancy Mandell (1986) acted as a participant observer and observed children's play and collaborative work in much the same way that I did. From her observations, she came to the conclusion that children are active participants in their own construction of knowledge. My research of children's peer collaborative interactions supports this conclusion through the evidence of teaching and learning among the children that I observed. We both observed children monitoring each other's behavior and building on that observed behavior in order to understand experiences. In the manipulative art experiences, the children used their observations of each other working to understand the materials on the tables as well as the possible manipulations and their extensions. Mandell discussed how individual projects transform into group projects through observation and children following each other's leads in manipulation and construction. This was apparent in both the building and drawing experiences that I observed. Children would hear another child's idea or observe them working, and then slowly move towards

them and join the experience. The experience then transformed into a collaborative interaction with verbal communication such as announcements and directions and non-verbal communication such as gestures and actions. This coincides with Rogoff's statement that children's observations of each other have social and participatory implications (1990). These children observed each other in their preparation to participate in the activities. Mandell also stressed that a structured interaction with a process and goal stems cognitive growth. Negotiation and modeling occurs as children share their knowledge, acquire new knowledge, and work towards a goal. In the drawing and building experiences, the children's teaching throughout the shared process acted as the "structure" for the interactions. The children negotiated their drawing by asking questions and offering their own ideas to the experience. This communication and expression assisted the boys in following the process of drawing a haunted house, men, and monkeys. In the building experiences, though they were varied in structure based on the level of verbal direction versus the sharing of ideas, a general process and goal always existed. The process was constantly negotiated by the children participating as they offered their ideas and suggestions as well as reacted to each other's contributions. At the end of all three of the experiences, each child had more knowledge of the possibilities for each structure they had built as well as its use in their play.

Mandell as well as Kransnor and Rubin (1981) discussed children's active participation in their collaborative experiences and focused on the idea that they use the behavioral strategies of repetition and turn-taking to achieve goals together. The children in the interactions that I observed utilized repetition in the form of modeling and turn-taking in their collaborative work. These behaviors framed the teaching/learning

experience. In the manipulative art experiences, the act of repetition in the form of modeling was a learning strategy for the children who observed their peers working and used their observations to understand the manipulative possibilities. In the pretense play experiences, the children actively participated together in creating play. I observed the children modeling each other's actions with the animals as well as taking turns expressing their ideas, explaining their animals actions, and manipulating the materials. These behaviors helped to enhance the play experience.

Theoretical Underpinnings

The constructs present in constructivist theories as well as the sociocultural theory of Vygotsky emphasize children's active role in their development and that children develop through their social experiences (Corsaro & Rizzo, 1988; Nicolopoulou, 1993). These theoretical frameworks stress children participating in interactions with their peers. Within these interactions, children use information from the experience to gain knowledge and acquire skills. The dialogue and construction of experiences allows children to use their language and actions as communication devices in collective representations (Nicolopoulou, 1993). Children coordinate ideas to contribute to their present understanding of a situation. Through the communication that exists in child/child interactions, children express and negotiate ideas that contribute to each other's understanding.

The collaborative interactions observed in this study are shaped around the concepts of children actively participating in their development as well as the impact of children's peer interactions on their development. Children constantly communicated their knowledge, skills, and ideas both verbally and non-verbally with each other

throughout their interactions and coordinated their participation to create a collaborative experience. It was in these instances that the children assumed the roles of teacher and learner. As children displayed their skills, verbally expressed their knowledge, and shared their ideas in a directive and exploratory tone, they acted as a teacher communicating with a learner in a reciprocal manner. As their peers received the information through listening or observing, they modeled the behavior, contemplated it in relation to their own thinking, or collaborated towards a shared goal.

Collaboration consists of mutual involvement by the children involved, equality of the relationship, and motivation based on a shared understanding (Tudge, 1992). In the manipulative art experiences, the children explored the materials in different ways but at an equal level. As specific children enhanced their exploration, the other children observed their actions, modeled their behavior, and essentially learned a new skill. During the drawing experiences, the children had the same motivation to draw a picture and were mutually involved by each adding their own piece to the group picture. In the building experiences, the children were all following the same general plan towards a common goal. Each child mutually contributed to the building experience and the creation of the final structure. In the pretense play experiences, the children were mutually involved in the play with the animals and created a shared understanding about the actions of the animals in the experience. Vygotsky also stressed the importance of feedback to promote joint understanding (Tudge & Winterhoff, 1993). The children gave constant verbal feedback through conversation and non-verbal feedback through repetition and modeling of actions. This feedback gave the receiving child confidence to

observe and learn, participate at their present level, and strive to reach higher levels of participation.

Vygotsky also argued that collaboration could not occur unless the children had a shared understanding or “intersubjectivity” (Tudge & Winterhoff, 1993). A shared understanding is obtained through constant communication and reciprocation between the children. A cooperative understanding forms between the children as they negotiate their ideas and experiences (Rogoff & Tudge, 1999). Throughout each of the art, block building, and pretense play experiences, the children came to a shared understanding about their interaction because of their trust in each other and faith in their mutual world of their peer culture in the classroom environment. In the manipulative art experiences, the children explored the materials and trusted each other’s actions enough to model them and expand their understanding. In the drawing experiences, the children reciprocated each other’s contributions and mutually shifted between their views to create a group picture. In the block building experiences, the children took on each other’s views, converged all of their ideas into an agreement about the goal and building process, and continually shifted between each other’s individual contributions to the group building experience to create a final collaborated structure. In the pretense play experiences, the children contributed their ideas about the actions of the animals while at the same time listening to each other and utilizing the information they were continually sharing. The presence of intersubjectivity in each interaction enhanced the experience for the children by allowing them to share their ideas and skills (a teacher role) and at the same time attain new knowledge and skills from each other (a learner role).

The children involved in these collaborative interactions assisted each other to higher levels of performance, allowing them to perform at levels they cannot achieve on their own. Vygotsky defines this as working in the “zone of proximal development.” In the manipulative art experiences, the children assisted each other to higher levels of manipulation with the cool whip, string, and straws by modeling new ways to work with the materials. When participating in the drawing experiences, the children asked each other to draw specific objects, inquired about what the different aspects of their drawing represented, and modeled each other’s drawings. Through these interactions, the children’s drawing abilities were supported to a higher level. When the children built with the blocks together, they taught each other how to build specific structures, added to each other’s ideas, and offered assistance in block choice and block arrangement. In the pretense play experiences, the children offered knowledge about the animals to each other as well as modeled different ways to play with the animals. The block building and pretense play experiences are both considered collaborative play interactions. Play creates the zone of proximal development through the children’s exchange of ideas and suggestions to extend the play. In the collaborative experiences, I observed the children offering each other information about a structure to build and the toy animals that extended each other’s knowledge of their uses and characteristics. The children offered each other adjusted support in their exploration as they became more comfortable with the experience. This support provided challenges and sensitive assistance to the children that increased their manipulation and understanding of the activity. In each of these collaborative experiences observed in this study, the children worked within each other’s

zone of proximal development as teachers and mastered skills within their own zone as learners.

Teaching and Research Implications

Teaching Strategies and Possibilities for Classroom Environments

The findings of this research can be used to foster new teaching strategies as well as implicate future research. Vygotsky (1978) believed that teaching and learning is best when it proceeds ahead of development because it “awakens and rouses to life the functions that are in the stage of maturing.” These functions lie in the zone of proximal development and can occur in a classroom setting between children through assisted performance. When teaching is structured under this concept, it works within the zone at points where children’s performance requires assistance. When children are given the opportunity to participate in experiences together, they are able to provide information to each other that increases their understanding of an activity or experience. This joint performance between children helps them to mature skills and become self-sufficient in their work. Tharpe and Gallimore (1988) called this concept “natural teaching,” and it involves interactions that awaken children’s minds to a point that they mature in their knowledge and thinking. They also advocated that peer models in educational settings are important sources of assisted performance, which aids in children’s development in their social world. By creating a classroom environment that offers activity centers where children are free to interact as they learn, the children will gain more information than if they were only taught by a teacher and unable to interact and discuss with peers. Children’s observations of each other in action within their peer culture give them more opportunities to learn from each other. These observational opportunities for involvement

in meaningful activity may be more commonplace in peer culture. Adults may not value or promote observational means of learning to the same extent as peers do. This is a common weakness of teachers that hinders the multitude of learning possibilities that can exist in a classroom. Therefore, adults must consider peers as models for collaboration and interaction in a classroom environment. Teachers need to be able to recognize and understand the value of peer interactions in creating opportunities for learning that might not otherwise exist. Rogoff (1990) emphasized the social and participatory nature of children's observations of each other. Children normally observe each other when they are preparing to participate or are already participating in an activity. This is important to consider when creating a classroom environment that facilitates children observing their peers for the purpose of learning from each other. Teachers must create a classroom environment that facilitates children's interactions and collaborations, and then they will then be able to observe assisted performance between the children. These observations can give them clues as to what types of behavior they need to perform when interacting and collaborating with their students that will allow them to master skills more effectively. If teachers observe children in collaborative interactions where they are acting as both teachers and learners to each other, they will be able to see how the children communicate effectively as well as how individual children communicate and retain information efficiently enough to be successful learners. This information could give teachers the opportunity to reevaluate their classroom environment and/or teaching strategies to facilitate a more successful classroom culture.

Rogoff (1990) stated that children in classrooms are seldom alone. Children observe their peers often and use the information from these observations to learn and use

the tools, skills, and perspectives of their peer culture. Teachers must recognize this fact and use this as an opportunity to observe and learn from the children as well.

It is also important for teachers to recognize the value of collaborative work as opposed to individual work. Too often teachers are in fear of “cheating” and the idea that children may converse with each other during an assignment or learning process.

Teachers and schools fear that this is a bad thing and that children are not showing their individual skills and knowledge. On the contrary, what better way to enhance what children gain from learning experiences and what they produce to show their knowledge then to allow them to converse and collaborate and share their ideas and knowledge? This can only foster a higher level of understanding of and level of knowledge about the subject. It is apparent from this study that children move to a higher level of understanding about an activity or experience when it is experienced in collaboration with peers. The children shared information and ideas that they may not have been able to come up with on their own and they were able to perform new tasks and enhance their experience by utilizing teaching and learning strategies with each other. These concepts can be beneficial in all learning environments if they are recognized by teachers.

Teacher Research

It is also important to recognize this study as teacher research and that it can offer an opportunity to read about the value of teachers doing research as well as give information to encourage further research in this area. Teacher research has become a prominent form of research in education because of the teacher’s insider-view and shared understanding of the classroom culture. I found this to be incredibly beneficial to my study because I understood the children both individually and as a classroom culture and

they were comfortable with my presence while they worked, played, and explored during the school day. My insider view of what occurs between the children in the classroom helps to professionalize teaching as important work in an effort to understand the complexity of children's development. It is my hopes that this study will not only expose teachers to the value of research in naturalistic settings like a classroom, but will also encourage them to look deeper into their classroom culture to see the importance and value of the relationships between the children as well as their experiences and interactions. The value of these natural environments for research on children's development is widely apparent based on previous research as well as the findings of this study. This will hopefully encourage other teachers to research children's social interactions and the teaching and learning that occurs within these experiences on a more extensive level. Further research in non-laboratory settings on this subject can only help teachers and researchers to understand the path of children's development better and use this knowledge to positively contribute to their developmental processes. These positive contributions can not only come from these adult's actions, but also from their facilitation of children obtaining knowledge and information from other social avenues, especially their peers.

My Personal Development

Finally, this study has helped me to mature as both a teacher and a researcher. I gained a more extensive understanding of the children's communication and learning styles from observing their collaborative interactions. I began by contemplating if children could truly take the positions of teacher and learner when they collaboratively interact. And if so, what does it look like and how would I know if it were occurring?

Through my observations of the children in various classroom activities, I was able to see exactly how they acted as a teacher and a learner as well as how many ways this was possible. I observed teaching strategies that ranged from constant talking and directing to quiet observing. At the culmination of each of these collaborative experiences, the children displayed behaviors that showed me that they had a new set of knowledge that they derived from their collaborative experience with their peers. After my recognition of these teaching and learning processes, I was then able to contemplate how I could use this information that was so successful in the child/child interactions in adult/child interactions in my classroom. I now believe that adults must understand the children and vice versa as well as the children understand each other. This will allow all the individuals involved to contemplate and attempt to understand each other's needs from the interaction. As the children used their observations of each other to gain this understanding, so must adults. I also observed a great deal of reciprocity and feedback between the children during their interactions. This seemed to enhance the learning value of the experiences. The reciprocity and feedback came through verbal and non-verbal actions, which I feel adults need to recognize and model. Either type of communication will convey to the other child or children involved in the interaction that they are recognized as active, learning participants. Using these observations to change not only my own understanding of children's teaching and learning but also my own teaching styles makes this study beneficial to me as a teacher. It allows me to take steps towards creating a classroom that facilitates constant communication and learning between all members.

I was also able to observe the culture of my classroom and all that it encompasses. My constant movement throughout the classroom as I videotaped allowed me to see every area of the classroom during the high activity points of the day. I saw the children as being very comfortable with adults observing them and capturing their interactions on film. The children rarely acted as if they cared I was taping them. I also observed the high level of self-sufficiency that the children hold within their culture. They communicated extremely well with each other and are strong in their positions and negotiations. The collaborative interactions that I observed showed the children as strong members of a peer culture that I helped facilitate, but the children created. The faith and trust that the children have in each other and their abilities as communicators were shown in their interactive processes and constant negotiation of each other's skills and abilities. Without the strong relationships between the children as well as the children's trust in my presence as their teacher, I feel these collaborative experiences would have been less meaningful and developmentally beneficial for the children involved. By recognizing my own classroom as an example of one that facilitated a peer culture that is strongly framed by the children's communications and interactions, I have a higher level of confidence as a teacher. I will always be learning in the classroom, but it is a wonderful feeling to know that I was a part of the creation of a classroom culture that allowed children to feel free to interact and communicate with each other as well as confident enough in their own knowledge and skills to share them with their peers. It is my hopes that all aspects of this study from the classroom culture to the teaching and learning experiences between the children will open the door to further research in this area as well as a desire in more

teachers to understand the value and contribution of each child they teach to the classroom.

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