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# Exploring Peer Learning in the Context of Dyadic Interactions in Kindergarten Aged Children

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EXPLORING PEER LEARNING IN THE CONTEXT OF DYADIC INTERACTIONS IN  
KINDERGARTEN AGED CHILDREN

BY

Elisabeth A. Mlawski

Dissertation Committee:

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Dr. Deborah DeLuca, MS, JD

Dr. Genevieve Pinto Zipp, PT, EdD

Submitted in partial fulfillment of the  
requirements for the degree of Doctor of Philosophy in Health Science  
Seton Hall University  
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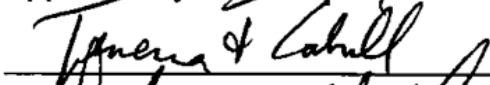

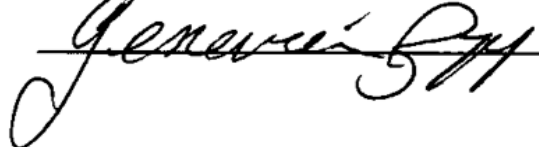
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**Approved by the Dissertation Committee:**

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## ABSTRACT

Kindergarten aged children are now expected to interact with peers in their classrooms for the purpose of gaining new knowledge. Since children spend a great deal of time in the company of other children, it is assumed that the children know how to learn from each other. Previously studied have been mechanisms used by adults during peer learning, but not the mechanisms used by children during unscripted peer learning interactions. Knowing the specific mechanisms used during these interactions will help to identify foundational skills necessary for successful peer learning. This study contributes to the understanding of the specific verbal and non-verbal peer learning mechanisms that are used, the ways in which these mechanisms are used, and how children react in response to each other during peer learning tasks.

Using a descriptive/explorative, serial case study design allowed for naturalistic observation of the dyadic interactions. The participants were found to use the mechanisms of observation and peer feedback. Unanticipated observations were asking for clarification from an adult and utilizing parallel play instead of working cooperatively during the dyadic interaction. Knowing the mechanisms used during peer learning and how children are working with a peer will help to develop techniques to strengthen peer learning interactions.

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## Chapter I

### INTRODUCTION

Children spend a great deal of their time in the company of other children. The power of influence of one child over another child allows for the assumption that peers can motivate, inspire, or even guide peer learning without even knowing it (Parr & Townsend, 2002).

Developing the necessary skills for interacting and collaborating with others for the purpose of learning is an ongoing process occurring all throughout one's life taking on different shapes at various points in time and employing a variety of individuals along the way. Initially, children begin to interact as a social experience with their parents. For example, when a child cries, their parents possibly interpret the behavior (i.e., the cry), as having meaning such as the child wants food. As a result of this interaction, the child is fed a bottle by their parents. This simple exchange is the beginning of a child learning that through interacting with others, their wants and needs can be met (Girolametto & Weitzman, 2002; Pungello, Iruka, Dotter, Mills-Koonce, & Resnick, 2009).

In their early years, as children develop they move from interacting with their parents into social situations where teachers and peers become the main focus of their learning. With learning categorized a social phenomena, influence from peers has been

identified as a mechanism for learning (Sage & Kindermann, 1999; Parr & Townsend, 2002). Children spend much of their time in the company of other children that leads to children influencing other children without even knowing it (Parr & Townsend, 2002). Peer interactions have been found to influence attitudes, beliefs, and behaviors that can contribute to further development (Sage & Kindermann, 1999).

A peer acquiring information and knowledge from other peers is now a component of the learning process beginning as early as kindergarten. The Common Core Standards (CCSS) provide expectations for learning that include using peers to acquire and learn new knowledge to add to their repertoire (National Governors Association Center for Best Practices, Council of Chief State School Officers, 2010). In classroom contexts, children interact with each other throughout the day (i.e., center time, snack time, lunch time) and are expected to learn from each other (i.e., CCSS.ELA-LITERACY.SL.K.1 Participate in collaborative conversations with diverse partners about *kindergarten topics and texts* with peers and adults in small and large groups). Besides children working with each other during social and academic interactions (Timler & Vogler-Elias, 2007), they are continuing to refine and expand their learning skills as they progress from kindergarten all the way through to twelfth grade. As children move from one grade to another, expectations are for children to acquire each year's grade-specific standards. This foundation will help children to retain or further develop the necessary skills and understanding to build upon for the next year.

Understanding how children learn from each other at different levels of maturation will be advantageous for teachers and others who work with children.

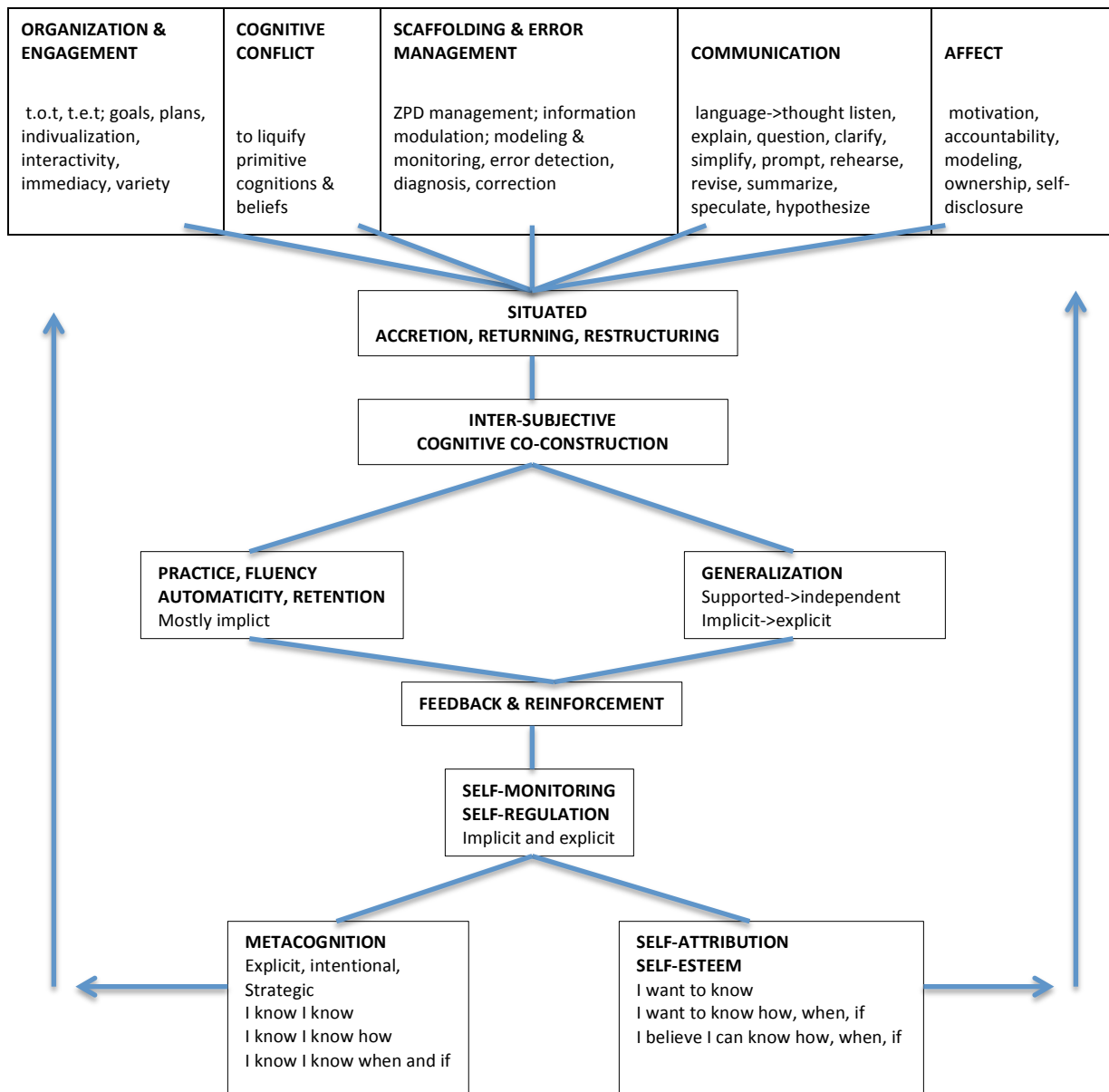
The purpose of this study is to add to the current literature on peer learning by understanding the specific verbal and non-verbal mechanisms that are used and contribute to peer learning in kindergarten age children, the ways in which these mechanisms are used, and how children react in response to each other during peer learning tasks. The information gained from this research will answer the research question:

1. What are the verbal and non-verbal mechanisms that occur during dyadic interactions with kindergarteners when presented with an immediate performance task?

With 45 out of the 50 states moving in the direction of incorporating peer learning as mandated by the Common Core Standards (National Governors Association Center for Best Practices, Council of Chief State School Officers, 2010) in classrooms beginning as early as kindergarten, this study will explore how kindergarten peers interact during a learning task. Currently, the literature identifies mechanisms and processes that can be used for learning during peer interactions, but it does not indicate what specific mechanisms kindergarten children use or which ones are the most successful. The significance of knowing which mechanisms children use and how they interact with each other during the two-way relationship of peer learning could lead to understanding ways in which we might strengthen peer learning/effects in not only school situations, but also

in other peer learning situations related to receiving rehabilitation services. Also, knowing which mechanisms are used by normally developing children can help to identify which mechanisms non-typically developing children are missing. Moreover, identifying the mechanisms that children are necessary to strengthen peer interactions and lead to further development of the skills necessary for successful peer learning.

This study utilizes a conceptual framework developed by Topping and Ehly (2001) in which the processes and mechanisms influencing peer assisted learning (PAL) are identified and their relationships explained (see Figure 1). A process is defined as the activity (i.e., modeling) and mechanism is defined as the strategies to which the process occurs (i.e., observation)(Parr & Townsend, 2002).



**In iterative cycles: Surface-> Strategic-> Deep Declarative-> Procedural-> Conditional**

FIGURE 1. Conceptual Framework for Peer Learning (Topping & Ehly, 2001)

According to Topping and Ehly (2001), for peer learning to occur five features (i.e., organization and engagement, elaboration of goals and plans, the individualization of learning and immediacy of feedback, a variety of learning interactions, and affective

component) of a learning interaction need to be present. Organization and engagement looks at peers' time on task, time engaged with task, the need for peers to come together for shared goals and plans, making learning individualized yet varied, and the need for immediate feedback if possible (Topping & Ehly, 2001). Conflict and challenge requires the activities to be within the zone of proximal development (Vygotsky, 1978) of both peers (Topping & Ehly, 2001). The need for the peers to communicate with one another allows for peers to explain concepts to one another and this aids in the crystallizing of thought into language (Topping & Ehly, 2001). Finally, the affective component of neither peer holding a position of authority over the other may strengthen the bond between peers that will allow for diagnosis and correction (Topping & Ehly, 2001). Furthermore, the theory accounts for engagement between peers, practice, and automaticity of core skills. In this study of kindergarten peer learning it was expected that these processes and mechanisms would be present to explain the peer learning experience.

Learning has long been debated as to the role nature and nurture play (Chapman, 2000). Children have an innate ability for learning (nature) (Pinker, 2002), but learning from others (nurture) contributes to the augmentation of children's knowledge (Hoff & Naigles, 2002). This study focuses on learning as nurture. This type of learning begins when a child interacts with his/her parents, and it continues as a child interacts with teachers once school begins. And, as the child interacts with siblings in



their family and with classmates in school, peers become an additional source of nurture.

In respect to how a child learns in interaction with a parent, Pungello, Iruka, Dotter, Mills-Koonce, and Resnick (2009) argue that the key factor is how responsive a parent is with their child. Responsive parents provide their children with interactive environments in which to learn (Girolametto & Weitzman, 2002; Pungello et al., 2009). For instance, a parent who follows his or her child's lead while playing is being responsive to what interests the child. In addition to responsivity, there are perceived mechanisms used by responsive parents associated with learning such as expansion (i.e., adding to what the child is saying), recasting (i.e., repeating what the child is saying), commenting (i.e., providing information based on what the child is saying), following the child's lead (i.e., keeping the conversation based on the child's interest), and using more referential language (i.e., talking about concrete terms) (Chapman, 2000; Topping & Ehly, 2001; Girolametto & Weitzman, 2002; Parr & Townsend, 2002). Girolametto and Weitzman (2002) propose that responsive teachers in the classroom utilize these same mechanisms to support learning. What is unclear is whether these same mechanisms are present as children interact in dyadic relationships as the basis for peer learning.

While the concept of peer learning is not new (Topping, 2005), the fact that the Common Core Standards (CCSS) have incorporated peer learning as a required approach, has elevated the importance of our understanding what peer learning is in the

context of young children and the mechanisms that they utilize (National Governors Association Center for Best Practices, Council of Chief State School Officers, 2010). In classroom contexts, children interact with each other throughout the day and are expected to learn from each other (i.e., CCSS.ELA-LITERACY.SL.K.1 Participate in collaborative conversations with diverse partners about *kindergarten topics and texts* with peers and adults in small and larger groups). Besides collaborative learning during social and academic interactions (Timler & Vogler-Elias, 2007), children are continuing to refine knowledge as they progress from grade to grade. As children move from one grade to another, the expectation of the CCSS is for children to acquire each year's grade-specific standards and retain or further develop skills and understandings to build upon for the next year. For example, the first English language arts standard for speaking and listening in kindergarten designates that children will "Participate in collaborative conversations with diverse partners about *kindergarten topics and texts* with peers and adults in small and larger groups." This standard is repeated each year through the twelfth grade. The common thread from year to year is the participation in collaborative conversations, in other words, peer learning is an expectation of CCSS. What changes are the difficulty level of the material discussed and the addition of higher level metacognitive skills (i.e., Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 11-12 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively). With 45 out of 50 states adopting the Common Core

Standards (CCSS), the expectation is that children will collaborate with peers in order to meet learning standards (National Governors Association Center for Best Practices, Council of Chief State School Officers, 2010).

Within the peer learning literature, peer tutoring as a dyadic interaction is a common theme. Much of this literature is based on the peer assisted learning strategy (PALS). In this model one child acts as the tutor, the other acts as the tutee and then the two switch roles during the learning process. PALS can be defined as an overarching term for a group of strategies that can be employed for active and interactive learning with peers (Topping & Ehly, 2001; Topping, 2005; Fuchs & Fuchs, 2005). PALS has been used for children as young as kindergarten to promote word recognition, sound play, and decoding (Topping & Ehly, 2001; Fuchs & Fuchs, 2005; Topping, 2005 Rafdal, McMaster, McConnell, Fuchs, & Fuchs, 2011). In these studies, peer learning was found to have benefits for learning specific reading skills (i.e., decoding and fluency). However, the specific mechanisms the children used or whether children can generalize the cooperative learning strategies outside of the PAL programming were not assessed. Since PALS sessions are scripted and children do not have any opportunity to deviate from the program and think for themselves, it is not known whether any of the skills that are used during the PALS program can be transferred to other learning situations. For example, do children prompt each other during a science activity when working with a peer.

The knowledge gained from this study has implications not only for teachers in the classrooms, but also therapists who work with children. In the school context, as students precede from grade to grade, the demands placed on them to cultivate, grow, and refine their ability to learn increases. Understanding how children experience peer learning, particularly in respect to the mechanisms that they use supports the utility of peer modeling as a learning strategy in a school environment as well as helps teachers to more effectively utilize peer learning as a learning/intervention tactic. For therapists who already use modeling as a strategy, need to be aware of the other mechanisms that are at play during peer learning to supplement what they are already utilizing with the children they are working with. Also for both teachers and therapists, knowing which mechanisms are used by normally developing children can help to identify which mechanisms non-typically developing children are missing. In the next chapter the literature concerning peer learning will be reviewed.

## Chapter II

### REVIEW OF LITERATURE

Besides spending time with their own family, children occupy a great deal of their time in the company of other children. This time together could lead to children influencing other children in a learning sense without even being cognizant of how this takes place or even what peer learning mechanisms are utilized to assist in the learning process (Parr & Townsend, 2002). Peer learning mechanisms are defined as the strategies to acquire knowledge and skill (e.g., observation) through a process of active helping and support (e.g., modeling) among status equals or matched companions (Parr & Townsend, 2002; Topping, 2005). Since mechanisms are behaviors, members of the peer group contribute to shaping the behaviors such as observation, imitation, or providing feedback (Sage & Kindermann, 1999).

Peer learning is a social phenomenon that has the ability to exert influence on peer interactions (Parr & Townsend, 2002). Mechanisms associated with peer learning do not operate in isolation from other social or classroom influences (Parr & Townsend, 2002) but are in part learned through peer interactions implicitly through observation throughout the day. Peer interactions have been found to influence attitudes, beliefs, and behaviors that can be important for children's further development (Sage & Kindermann, 1999; Hanusheck, Kain, Markman, & Rivkin, 2003; Henry & Rickman,

2007). Accordingly, peer learning is based on the premise of additional opportunity to practice a new concept will aid in the learning process (Fuchs & Fuchs, 2005). In this review of the peer learning literature, what is known about peer learning from studies that have been completed, theories that are available to describe what occurs in peer learning, and, research methods that have been utilized to study peer learning are considered. This review begins with a consideration of what has been learned about the benefits associated with peer learning.

### **Peer Learning Benefits**

A fundamental benefit of peer learning is the provision of additional and quicker feedback associated with working with a peer instead of waiting for the classroom teacher to make their way around a classroom (Topping & Ehly, 2001). According to Topping and Ehly (1998), peer learning is also a vehicle for positive contact between students and teaches social skills. Relevant and transferable skills are used that can be beneficial across different academic areas (Topping & Ehly, 1998). Peers can gain benefits such as increased knowledge, skill, confidence, and motivation (Topping & Ehly, 1998). Furthermore, Topping and Ehly (1998) acknowledge the skills gained from peer learning can be used within the classroom but also may extend beyond school.

### **Nature or Nurture**

Learning has long been debated as to the role nature and nurture play in the development of a child. Children are born with an innate ability for learning (nature)(Pinker, 2002). According to Chapman (2000), two generalizations can be made

about the nature of learning. First, a child's development follows a particular plan. Learning grows as a result of functions stemming from the observed behaviors of others (Chapman, 2000). Secondly, children have the capacity to eventually replace what was learned earlier with new refined learning (Chapman, 2000). These two generalizations guide the importance of nature for learning.

While children are born with an innate ability to learn (Pinker, 2002), the path of nurture as a means for learning commences early in the life of a child. Nurture includes variations in how children acquire knowledge through environmental factors and the help of others (Bohnannon & Bonvillian, 1997). The first influence (i.e., nurture) on the development of a child is family. Socio-economic status (SES) is a complex set of components including parental education and income that create a complex interaction for language development (Miser & Hupp, 2012). Pungello, Iruka, Dotter, Mills-Koonce, and Resnick (2009) found SES as well as race and maternal sensitivity to be significant predictors of learning in young children. Fitzgerald, Hadley, & Rispoli (2013) found mothers from lower SES spend less time and use different interaction styles when they talk to their children than mothers from higher SES. Similarly to Fitzgerald et al. (2013), Miser and Hupp (2012) found parents from lower SES provide a less enriching environment that in turn leads to lower vocabularies for their children. These parents were also less likely to purchase reading and learning materials, expose children to a variety of cultural events or monitor the television viewing of their children (Miser & Hupp, 2012). In turn, a richer language environment from high SES families yields an

increase in knowledge over children from mid-SES families (Pungello et al., 2009; Miser & Hupp, 2012).

A mother's level of education is another nurturing factor that has been found to influence learning. The quantity and quality of learning experiences children are exposed to has been found to be dependent upon parental education such that mothers using richer vocabularies developed children who produced richer vocabularies at two years old (Hoff & Naigles, 2002). In a study by Dollaghan, Campbell, Paradise, Feldman, Janosky, Pitcairn, and Kurs-Lasky (1999), the children of college-educated mothers influenced learning more than mothers with less education. The more education a mother completes (e.g., college education over high school only), the more words and larger variety of words mothers were found to use (Dollaghan et al., 1999). Additionally, mothers have been found to provide different quality and quantity of learning than fathers and siblings (Malmeer & Assadi, 2013).

### **Parents**

Another important influence on nurture and learning is the sensitivity of parents to their children as well as the types of interactions they have with their child. Sensitivity is defined as how responsive parents are to their child (Pungello et al., 2009). For example, responsive parents provide their children with interactive environments in which to learn and communicate that promote language acquisition (Girolametto & Weitzman, 2002; Pungello et al., 2009) and provide an interactive environment for reciprocal verbal and non-verbal exchanges (Pungello et al., 2009). A parent who



follows his or her child's lead while playing is being responsive to what interests the child.

Chapman (2000) found parents who expand (e.g., add to what a child is saying), recast (e.g., repeat what a child is saying), comment (e.g., provide information based upon what a child is saying), follow a child's lead (e.g., keeps the conversation based upon a child's interests), and use referential language to promote learning and development.

Productivity is a further impetus of a mother's nurturing style while promoting development in children. Productivity can be defined as how much information is conveyed to the child during interactions (Abraham, Crais, Vernon-Feagans, & the Family Life Project Phase 1 Key Investigators, 2013). Abraham et al. (2013) studied how mother's interacted with their child at six months and then at fifteen months as they participated in a book sharing activity; not what the child learned. This study was not homogeneous as to the level of education and income level of the mothers. Exposure to learning was found to vary according to the types of words used within and between varying income levels as well as with the number of different words a mother used during a book sharing session varying between nine to 160 words at six months and nine to 187 words at fifteen months (Abraham et al., 2013). This suggests the more education the mothers had, the more variety of words they used with their children.

### **Siblings**

Likewise, siblings provide a nurturing component to development in respect to learning and language development through naturally occurring experiences that benefit

cognitive, language, and psychological development (Brody, 2004). According to Brody (2004) it is the sibling's interaction with each other that contributes to each other's development. An indirect contribution also occurs as a result of the relationship between parents and the care that other siblings receive (Brody, 2004). Following the transcribing of speech samples of child and family play time, Malmeer and Assadi (2013) found children without siblings had a higher mean average score for producing sounds and words than children with siblings, but children with siblings had a higher mean average comprehension score. This study suggested that children with siblings encounter a more complex linguistic environment while talking with their siblings than they would have playing solely with their parents (Brody, 2004). This finding provides support to the importance of peer learning.

### **Teachers**

After parents and siblings as nurturing influences in a child's development, teachers are contributing factors to children's development through interactions in school. Research by Girolametto and Weitzman (2002) found teachers need to be as responsive as parents to continue the learning influence on children because the experiences children have in school shape learning due to the amount of time they spend in school. Nelson, Welsh, Camarata, Butkovsky, & Camarata (1995) also found responsive styles to be indicative to advancements in learning. Specifically, the responsive style of recasting (e.g., repeat what a child is saying) was found to promote learning faster.

## **Peers**

The focus of this study concerns how peers contribute to learning, in particular the mechanisms that are utilized by peers to promote learning. According to the literature, peer learning plays a vital role in child development. For example, peers provide the ability for students to work together, contribute to each other's learning as catalysts for their own growth and development, as well as provide the opportunity for children to influence and motivate their peers (Sage & Kindermann, 1999; Topping & Ehly, 1998; Topping & Ehly, 2001; Hanusheck, Kain, Markman, & Rivkin, 2003; Henry & Rickman; 2007). Additionally, learning from peers capitalizes on how peers have the ability to enhance natural and student centered learning (Rohrbeck, Ginsburg-Block, Fantuzzo, & Miller, 2003). Peer interactions provide numerous opportunities for learning and teaching as children work through a variety of interactions over the course of the school day (Rohrbeck et al., 2003). Furthermore, peer learning utilizes a free resource for learning as students in the classroom are used as a tool for learning and an opportunity for additional practice (McMaster, Fuchs, & Fuchs, 2006). However, there is not one approach or method to peer learning.

### **Types of Peer Learning**

One approach to peer learning is peer tutoring. Peer tutoring allows peers to supervise peers' responses. When peers participate in the supervision of their partners' responses, each peer benefits. For example, there is the provision of correcting of incorrect responses, as well as the provision of increased opportunity to respond

(Delquadri, Greenwood, Whorton, Carta, & Hall, 1986; Topping & Ehly, 2001; Parr & Townsend, 2002). Fuchs and Fuchs (2005) devised an organizational strategy called Peer Assisted Learning Strategies (PALS) to promote decoding instruction for reading and facilitate practice amongst kindergarten aged students. In PALS children worked in dyads taking turns as both the tutor and the tutee. First, the teachers trained the students in how to interact with each other. Students were trained to ask specific questions and provide specific corrective feedback as necessary. At the conclusion of the study, when students learned the routine, they were responsible for the implementation of the dyadic interaction and were found to make gains over the control group who did not use the PALS method. What is unknown is whether a prescriptive program such as PALS is transferable to areas outside of reading instruction and prepares students to collaborate with a peer outside of the structured reading program.

Additional peer learning methods have been found in the literature. A peer monitoring method requires peers to observe and check if their peer partner is following the procedures or processes during a learning activity (McCurdy & Shapiro, 1992; Topping & Ehly, 2001). This method has been found to be effective with students as young as first grade (Topping & Ehly, 2001), but does not discuss what mechanisms for learning contribute to the monitoring success. Peer modeling has peers providing examples of a desirable learning behavior with the intention of the behavior being imitated (Topping & Ehly, 1998). Similar to peer modeling, peer education/incidental teaching has peers teaching peers a skill that they may not have, but need while

learning (McGee, Almeida, Sulzer-Azaroff, & Feldman, 1992). McGee et al. (1992) utilized five-minute sessions between a targeted child who has the desired skill and the peer tutor who needs the skill. Interactions were kept brief, which may have a positive effect on the attention of preschool children who would otherwise not pay attention for longer periods of time (Brown & Odom, 1995). For this study, the childrens' interactions consisted of an initiation and a response that increased following peer training which leads to the conclusion that social interactions can benefit from peer to peer training (McGee et al., 1992).

Peer effects contend that peers may directly affect childrens' learning during student-to-student interactions. Hanusheck, Kain, Markman, & Rivkin (2003) assert that there is a simultaneous nature of peer interactions: a student can both affect peers and is affected by peers. Henry & Rickman (2007) agree that what children know and what they can do may influence their peers. Henry and Rickman (2007) posit that higher skilled peers with greater language skills as measured by the Peabody Picture Vocabulary test and the Woodcock Johnson Letter Word Recognition (WJ-LW) could stimulate the skills of their peers because of the increased interaction with peers in early education environments. Earlier learning (i.e., nurture) may help higher skilled children to help others in so much as influencing the development of the other children in class through incidental interactions that occur throughout the day (Henry & Rickman, 2007). Additionally, Schechter and Bye (2007) believe children with mixed ability levels can

learn from each other. Higher level children can still reap the benefits of peer learning even when collaborating with children not at their level.

### **Peers Learning from Peers**

Studies measuring peer effects found positive aspects to peers learning from peers, but without directly measuring the mechanisms used to accomplish learning. In a study by Henry and Rickman (2007) using a random sampling of students in pre-kindergarten classes, higher peer abilities were associated with significantly more receptive vocabulary at the beginning of kindergarten. Vocabulary growth was measured by standardized tests over the course of a school year, not by an immediate learning activity. Hanushek, Kain, Markman, and Rivkin's (2003) did not measure children directly helping each other, but rather the benefits that can come from a good peer model for motivation and aspiration. In turn, when children motivate and help each other, teachers may teach additional advanced information due to the raised level of the entire class (Henry & Rickman, 2007).

Schechter and Bye (2007) also found positive peer effects when studying low-income preschool children. As measured by parents SES, low-income preschool children who were integrated into learning programs with middle and upper income children made greater gains in the fundamental information necessary for learning than low-income children, working in class along side other low-income students. Peer effects were more pronounced when mixed ability levels were placed together.

Delquadri, Greenwood, Whorton, Carat, and Hall (1986) studied peer learning in fourth

graders across all academic areas. Children were taught to model for each other during peer interactions. Learning was measured based upon the subject area being tutored using a pre-test/post-test design. Results found modeling helped during peer learning. Studies by Fuchs and Fuchs (2005) and Rafdal, McMaster, McConnell, Fuchs, and Fuchs (2011) both studied kindergarten students' ability to learn from peers using a pre-test/post-test design. Peers used a prescriptive program called Peer Assisted Learning Strategies (PALS). In both studies, peer dyads benefited from the scripted program, but children were not provided with the opportunity to think for themselves as they were trained as to what to say during the peer learning activities and were not given any opportunity to deviate from the program. Additionally, Fuchs, Fuchs, Hamlett, Phillips, Karns, and Dutka (1997) studied second through fourth graders as to the influence peer learning can have on mathematics. Using a comprehensive mathematics test and in situ observations, significant effects for treatment were found for peer learning. The participating students were found to benefit from the elaborate teaching of strategies for working together and how to interact during the peer learning sessions. But similar to PALS, tutors were taught how to provide explanations to the tutees without providing any opportunity to deviate from the prescriptive math program.

### **Peer Learning on Narrative Skills**

In another study of peer effects, McGregor (2000) assessed the influence peers had on the narrative skills of peers in three separate studies within the same journal article. In study two, one child narrated from a book and the other child listened. Then

the roles were switched similar to peer tutoring as described by Topping and Ehly (2001). Results of the study supported the hypothesis that one preschooler's narrative model can have an immediate influence on the other. In McGregor's third study from the same article, children were put in dyads with the tutee having less skill and the tutor having more skill. The number of different words, number of total words, mean length of utterance, and nine targeted story elements used per story were measured over eight weeks of intervention. Tutees demonstrated some increases in the number of story elements and the use of some new elements they did not use at baseline. As similarly reported by Justice et al. (2011), tutors were not negatively influenced by exposure to the less skilled tutees and their rate of narrative growth was superior to that of the control group.

### **Peer Learning Associated with Social Skills**

Peer effect studies look at whether a peer effect was present following peers working together. Timler and Vogler-Elias (2007) studied where preschoolers working with other preschools can effect change to social language skills. Following treatment, peers were able to generalize the social language that they learned. In a study by Justice, Petscher, Schatschneider, & Mashburn (2011) children with lower language skills measured by selected subtests of the Clinical Evaluation of Language Fundamentals Preschool, Second Edition (CELF:P-2), the Peabody Picture Vocabulary Test, Third Edition (PPVT-III), and the narrative Assessment Protocol (NAP) benefitted from interaction with peers who had higher language skills as shown by increased



language growth from fall to spring. Children whose language skills were closer to the mean of the peers in their class improved, but not as much as the lower language skilled. Highly skilled students seemed fairly impervious to peer effects, but did not lose skills (Justice et al., 2011). Therefore, peer effects were more pronounced for the lesser skilled students, but not harmful to the higher skilled students. Hockings, DeAngelis, and Frey (2008) studied college-aged students ability to effect their peers in a general chemistry class over the course of a semester. The overall grade in the chemistry class revealed that students who participated in the peer program outperformed non-participants by almost one grade rank (e.g., B versus B-). Stock, Miranda, Evans, Plesis, Ridley, Yeh, and Chanoine (2007) studied peer influence of kindergarten through seventh grade students for a healthy living program. Over the course of the program, no significant difference in weight, blood pressure, heart rate, or a nine-minute run was found. The older peers working with their younger counterparts influenced health knowledge, behavior, and overall health attitudes. What is notable from these studies is the range of ages starting as young as preschool going all the way through higher education as well as the range of learning tasks such as social communication, chemistry, and healthy living that uses peers as a strategy for learning.

### **Peer Learning in Higher Education**

Only two peer effect studies measured the perceptions of peer learning. Henning, Weidner, & Jones (2006) asked college aged athletic training students what they perceived were the benefits of Peer Assisted Learning. Following the completion

of the Athletic Peer-Assisted Learning Assessment, students perceived they learned a moderate to large amount of clinical skills from peers. Similar to Henning et al. (2006) Field, Burke, McAllister, and Lloyd (2007) asked medical students what they perceived were the benefits of Peer Assisted Learning. What was different about the peer effects in this study, the trainers were more experienced medical students who had already completed the clinical examination as opposed to each of the peers being on the same level. Following a clinical examination, the trainees (students) perceived their confidence as high and would recommend the training program to other students.

Alternative forms of peer learning were also found in the literature. Cooperative learning activities are where children work together in small groups to accomplish joint goals (Brinton, Fujiki, & Higbee, 1998; Topping & Ehly, 1998; Parr & Townsend, 2002). This offers an opportunity for children to work productively with peers who can provide good models for learning and social behavior. Peer counseling establishes a peer interaction for listening, providing feedback, summarizing and being positive and supportive (Topping & Ehly, 1998). In another form of peer learning, peer mentoring posits working with someone with more experience in a joint area of interest (Topping & Ehly, 1998).

### **Common Core Standards**

Peer learning is now linked to the Common Core Standards (CCSS). Each grade specific standard defines peer learning expectations for each individual grade. The standards follow a cumulative progression designed to enable students to meet college

and career readiness expectations no later than the end of high school. The purpose of the CCSS is to provide a framework of information necessary for students to learn in order to advance through each grade. By the end of each academic year, students are expected to meet their grade-specific standards, maintain or further develop foundational skills as well as master the information from preceding grades.

### **Mechanisms Utilized by Peers**

In addition to studies that have focused on various different definitions of peer interaction (i.e., peer learning, peer counseling, peer mentoring) and different contexts (i.e., ages, topics, etc.) another focus of exploration has been on mechanisms that are utilized by peers in their interaction. For example Girolametto and Weitzman (2002) found that responsiveness of parents has been linked to an increase in learning with children. Responsive styles of parents increase the ability to make connections between words and referents (Girolametto & Weitzman, 2002). The processes involved when parents are responsive to their children are commenting, describing, and interpreting (Girolametto & Weitzman, 2002). In studying how parents nurture their children, mechanisms that contribute to a child's learning were found to be providing motivation, aspiration, and direct interaction (Topping & Ehly, 1998; Hanushek et al., 2003). For learning to continue to grow, mechanisms from parent-child interactions need to transfer to peer-to-peer interactions.

While some articles have commented on learning mechanisms necessary for peer learning to be successful, Parr and Townsend (2002) identify mechanisms and

processes that have been found to influence learning. Parr and Townsend (2002) reported mechanisms that are used during peer learning that were based upon social constructivist and socialization theories, not the observation of children using the mechanisms during a peer learning exchange. For example, feedback, modeling, and observation were identified as playing a role in peer learning environments. Parr and Townsend (2002) also identified the difficulty of discerning which mechanism is actually being used during peer learning interactions due to outside influences (i.e., social or classroom).

Supervision is yet another mechanism that can contribute to peer learning. In terms of peer learning, supervision is one peer providing additional response and practice time for another peer (Delquadri et al., 1986). For example, one peer works with his/her partner on practicing a lesson that had already been taught such as spelling, mathematics, or vocabulary to monitor if the lesson was learned while providing additional opportunities for practice and responding (Delquadri et al., 1986). Additionally, students can be trained to use explanations, modeling, and practice providing feedback during interactions (Delquadri et al., 1986). Socialization is another mechanism that may increase peer engagement, engagement in group activities, approval for on-task behaviors from peer group members and disapproval for off-task behaviors by a non-members (Sage & Kindermann, 1999). Specifically, socialization as a mechanism looks at how similarities and differences may effect the relationship between peers.

## **Peer Learning Models**

There is a breath of different terms found in the literature that are utilized in the topic of peer learning. For example, the literature describes peer teaching, clinician-mediated intervention, peer-mediated intervention, and peer tutoring.

One way peer teaching is exerted is through assigning roles to the students (McGee et al., 1992; Topping & Ehly, 1998; Mastropieri et al., 2007; Timler & Vogler-Elias, 2007). In this schema, one student is assigned the role of the tutee (the student receiving help) and the other is the tutor (student providing the tutee with the skills/behavior to help) that is similar to the PALs model. If the tutor is trying to help the tutee make requests, through the mechanism of observation, the tutor may wait for the tutee to initiate or request (e.g., reach toward a desired item). Through the process of prompting, the tutee may repeat what the tutor is saying (e.g., “say ball”). Through engagement, the tutor may provide the tutee the desired object if the tutee provides the label (e.g., “ball”). In addition, the tutor may provide affect by providing motivation and/or corrective feedback (e.g., “That was great. You said ball!”) (McGee et al., 1992).

The tutor/tutee relationship also provides a unique context for learning. The interaction between the tutor and tutee provides for naturalistic opportunities to execute new skills within relevant contexts (Timler & Vogler-Elias, 2007). Timler and Vogler-Elias (2007) described two techniques for teaching pragmatics (e.g., social language skills).

First is peer-mediated intervention in which peers support other peers without the help of adults. For this technique to be successful, a typically developing peer is identified to work with a targeted peer in need. The typically developing peer is taught the intervention in order to teach the new skill to their peer. Then there is clinician-mediated intervention where small groups are designed to provide mass practice and feedback for skill/behavior development. Clinician-mediated intervention differs from peer-mediated intervention due to the clinician playing a role in peers learning from each other. The clinician allows for learning and practice to proceed without interfering, but is available to provide foundational information as needed for understanding. The clinician sets predetermined goals but the peers execute the activity by recording and reporting the total number of times the goal was achieved all the while the clinician is monitoring. McGregor (2000) also used a clinician-mediated intervention where the clinicians provided foundational information that scaffolds or builds upon itself to prompt further learning during narrative development. Prompts followed the child's attentional lead, built upon the previous utterance, and provided immediate feedback for the child to understand the accuracy of their production. The monitoring by the clinician allows for learning to occur between peers all the while the clinician monitors to ensure goals are being met and the dyad is remaining focused to task.

Another form of peer tutoring was executed by Topping and Ehly (1998) and McGregor (2000). Peer tutoring during these studies took the shape of distinct roles for each child in the dyad, discordant pairing (e.g., older tutor, younger tutees), and/or

concordant pairing (e.g., pairing by similar ability levels). Similar to Timler and Vogler-Elias (2007), Topping and Ehly (1998) and McGregor (2000) arranged the dyads where one peer teaches while the other peer listens and then had the dyads exchange roles and perform the new roles. After a prearranged amount of time, the students exchange roles that allows for the tutee to become the tutor and practice the skills they were just working on. More specifically, McGregor (2000) explored the influence of peer models matched within four months of each other on narrative script development in preschoolers. Tutors modeled targeted narrative skills, but clinicians scaffold as well as prompted and provided feedback for the tutee as well as provided modeling of skills appropriate to the context that were not present during the dyadic interaction.

### **Literature Summary**

In summary, nature versus nurture looks at the factors that contribute to learning. Nature takes the point of view that there is an innate ability for learning (Pinker, 2002), where nature takes the point of view that the environment plays a role in learning (Hoff & Naigles, 2002). Development through nurture begins with parents, family members, then moving on to teachers once children begin schoolings, and ultimately adding peers as contributing factors to an individual's learning.

Much information can be gleaned from the literature about the different names for peer learning and the different ways that peer learning can be executed. To begin, children as young as five and six years old have the capacity to work productively, constructively, and supportively with each other to enhance learning (McGregor, 2000).

Peer effects have been found to influence learning (Justice, Petscher, Schatschneider, & Mashburn, 2011). Children's learning may be directly affected by their peers during student-to-student interactions such as can be seen during cooperative learning groups. The simultaneous nature of peer interactions illustrates how a student can both affect their peers and be affected by peers (Hanusheck, Kain, Markman, & Rivkin, 2003). Everyday peer activities in classrooms could influence the development of other children through interactions that occur throughout the course of the day (Henry & Rickman, 2007). A cooperative learning activity provide opportunities for children to work together in small groups to accomplish joint goals as well as offers an opportunity to work productively with peers who can provide positive models for language and social behavior (Brinton, Fujiki, & Higbee, 1998). Finally, motivation is a key process that can be learned through the mechanism of observation in peer interactions (Sage & Kindermann, 1999).

While the positive aspects of peer learning have been established in the literature, gaps in the literature are also apparent. Despite peer learning being found to be an effective approach for children to learn when used as a component of an instruction routine such as Peer Assisted Learning, the mechanisms that children are using when working together are not described. Additionally, it is unknown as to whether or not children can transfer the skills used in the scripted program (i.e., PALS) to other learning activities. While some studies (such as PALS) have focused on mechanisms for learning, it is not clear as to how the mechanisms that are recognized



as contributing to peer learning in children were identified. For example, in Parr and Townsend (2002), learning mechanisms and processes that are used for peer learning are reported, but the development of mechanisms used at each age are not identified. In other studies reported earlier, peer effects/group activities were not studied for what specific mechanisms children are using during the peer interactions.

Topping and Ehly (1998) propose a conceptual framework for peer assisted learning (PAL) of what is happening during peer dyadic interactions that makes peer learning successful. The conceptual framework cycles through groups of mechanisms and processes that influence the effectiveness of peer learning (i.e., organization and engagement, cognitive conflict, scaffolding and error management, communication, and affect). The framework moves through components that effect and are utilized during a learning activity (i.e., practice, generalization, feedback). The framework concludes when learning arrives at the metacognitive stage where true learning occurs when the individuals participating in PAL need to reflect about their own learning (i.e., I want to know, I know I know). But if learning was not complete or there is additional information to learn, the framework allows for the process to start over from the beginning. One could speculate that the goal of the conceptual framework is to learn and utilize the mechanisms, processes, and skills so that they become embedded into the peer learning process and would ultimately transfer to other learning activities.

With the Common Core Standards (CCSS) requiring expectations for learning that includes using peers to acquire new knowledge in public schools (National

Governors Association Center for Best Practices, Council of Chief State School Officers, 2010), the influence of peers on learning warrants continued research. Forty-five out of fifty states expect children to master each year's grade standards by the end of the academic year and each year's standard builds upon what was learned the previous year. Peer learning is a skill that is now required as young as kindergarten. This research begins to fill the gap in the literature of what mechanisms children use during peer learning. Additionally, the relationship peer effects have on learning was explored. The next chapter will discuss the methodology used by the primary investigator.

## **Chapter III**

### **METHODS**

The purpose of this study is to understand the specific verbal and non-verbal mechanisms that are used and contribute to peer learning in children, the ways in which these mechanisms are used, and how children react in response to each other during an immediate peer learning task. The information gained from this research answers the research question:

1. What are the verbal and non-verbal mechanisms that occur during dyadic interactions with kindergarteners when presented with an immediate performance task?

#### **Institutional Review Board**

A completed application was submitted to Seton Hall's Institutional Review Board (IRB) and Monmouth University's IRB. Approvals from both institutions were received (Appendix A). After obtaining IRB approvals, seventy-five packets were prepared to be handed out at the school. At the conclusion of the study, research records will be stored for three years. After three years, the flash drive and videos will be completely deleted. Finally, all paper records will be shredded to ensure confidentiality.

## Research Design

A descriptive/explorative, serial case study design was utilized to answer the research question. A serial case study design was utilized because it allowed the primary investigator to observe six dyads of kindergarten aged children performing a learning task in order to identify what learning mechanisms were utilized by the children. The qualitative design of this study allowed for the naturalistic observation of the dyadic interaction of the children in the actual setting where the phenomena of peer learning occurs as they pursued their assigned learning task.

Data was collected through observation and videotaping of peer dyadic interaction in the context of an immediate learning task. The data was transcribed and analyzed. To answer the research question, the transcribed data was reviewed to determine what verbal and non-verbal mechanisms are occurring during dyadic interactions that can be defined as peer learning. Transcripts were coded and explored in order to describe the experience of peer learning in these kindergarten children's dyads. Additionally, a priori list of codes were developed from the literature such as expansion, recasting, commenting, following the child's lead, using more referential language (Chapman, 2000; Topping & Ehly, 2001; Girolametto & Weitzman, 2002) are used during peer interactions. Also, emergent, unanticipated mechanisms related to the learning process during the peer interactions were identified with new codes (Topping & Ehly, 2001). Furthermore, the data concerning the reactions of the children during these interactions was coded and analyzed to determine if children react in similar ways

during peer learning in the context of an immediate learning task (i.e., teacher role and/or student role).

## **Sample**

Permission to collect data in the Long Branch School District was acquired from the superintendent of schools (Appendix B). The Long Branch Schools serve children from pre-kindergarten through the twelfth grade. The school building where the data was collected educates students from kindergarten through the fifth grade. The school is comprised of a variety of ethnic groups with children of Hispanic decent making up the majority of the students. During the 2013-2014 school year, 78.6% of the 715 students enrolled were classified as economically disadvantaged.

Twelve kindergarten students were recruited from a single classroom from one of the schools within the Long Branch Schools. This school was selected from all of the schools in the district due to the amount of kindergarten classes located in the building. Kindergarten was chosen because it is the first year included in the Common Core Standards (National Governors Association Center for Best Practices, Council of Chief State School Officers, 2010).

Sixty-nine packets were handed out to four different kindergarten classrooms all within the same school. Parents were informed about the study that asked for their child's participation through a solicitation letter (Appendix C) and informed consent letter (Appendix D) that was sent home in the student's backpacks requesting permission for their children to participate. Along with the letters for the parents were the child's letter

of assent (Appendix E) and a short demographics survey for introductory information (Appendix F). Sending information home through the students' backpacks is a common practice for transmitting information home. As the participants in the study were minor children, the solicitation process required consent from a parent for his/her child to be approached to participate, and, assent from the child agreeing to participate. The parental consent letter was sent home for the parent to review and sign prior to the primary investigator talking to the child. With the parental consent letter, a solicitation letter was also included that provided the contact information for the primary investigator if they have any questions or want further information regarding the study. Also, sent home was a demographic survey that contained variables such as whether or not the child had siblings or was taking any medication that may be considered during analysis. This information was collected to assist in the analysis of the dyadic learning data.

Thirty-seven packets were returned to the students' classroom teacher and were deposited in a box located in the vice-principals office at the school. After the primary investigator reviewed the completeness of the packets, four participants were found to be ineligible due to reported learning disability or speech and language delay. One participant returned the consent form signed, but did not include the survey. Identification numbers were then assigned to the information returned in the packets in order to protect the participants' confidentiality.

Following receipt of a parent's consent for a child's participation in the study, at pre-arranged times with the school, the primary investigator was introduced by the

classroom teacher to the kindergarten class. Individually, the primary investigator asked each child whose parents had returned the parental consent letter if she could speak to them about playing a game. The child and primary investigator met within eyesight of the child's classroom teacher but right outside the classroom to lessen distractions. The primary investigator advised the child that his/her parent provided permission to talk with the child and then the primary investigator read the prepared assent letter to the child. After reading the entire assent letter to the child, the primary investigator asked the child if he/she had any questions and offered to answer any questions he/she may have. Then the primary investigator asked the child if he/she wanted to participate in the game. If the child said he/she says yes, the primary investigator documented the child's decision. If the child said no, the primary investigator documented the child's decision, thanked him/her for talking, and brought the child back to join the rest of his/her class.

### **Inclusion Criteria**

The following inclusion criteria were utilized:

- Only typically developing children as determined from the parent's completion of the demographic survey.
- Students range in age from 5;0 to 6;6 years old (born in 2008; currently enrolled and attending kindergarten).
- Only children who spoke English were considered for the study.

- In order to screen for English proficiency and vocabulary, the Peabody Picture Vocabulary Test, Fourth Edition (PPVT-4) (Dunn & Dunn, 2007) was administered prior to participants being accepted for the study.
- To make sure the participants had the fine and gross motor ability for the learning task, the Peabody Developmental Motor Scales (PDMS-2) (Folio & Fewell, 2000) was administered prior to acceptance to the study.
- The participating children had to have been enrolled in school for at least six months in order that they have an understanding of a teaching environment.

### **Exclusion Criteria**

The following exclusion criteria was adopted:

- Children younger than 5;0 years-old were excluded from the study due to the possibility of limited abilities secondary to their age and experience and older than 6;6 years-old due to the possibility of an increased abilities as a result of their added maturation secondary to age and experience.
- Children were excluded if their motor skills were below that of a typical 5 year-old as measured by the Peabody Developmental Motor Scales (Folio & Fewell, 2000).
- Children were also excluded from the study if there were any reported disabilities per the parental demographics survey that might interfere with the study such as autism, Down syndrome, or a speech and language delay/disorder.
- Children who do not speak English were excluded from the study.



## Procedures

Following assent, all children participating in the study were tested individually by the primary investigator for English proficiency and vocabulary using the Peabody Picture Vocabulary Test, Fourth Edition (PPVT-4) and baseline developmental motor abilities using the Peabody Developmental Motor Scales, Second Edition (PDMS-2) prior to beginning the study. The PPVT-4 is a norm-referenced tool to measure receptive vocabulary in children and adults. This assessment was given in order to gauge acquisition and/or mastery of the English language. The PDMS-2 measures both fine and gross motor development. This assessment was chosen as it can be used to estimate a child's motor competence relative to his or her peers. Both of these tests were administered to ensure the children participating are of similar ability for both vocabulary and motor skills.

Following the assessments, children who met the eligibility requirements were divided into dyads. While the plan was to form the dyads, by dividing the children by novice and non-novice ability at tossing a beanbag as measured by his/her ability to throw a ball underhand on the PDMS-2, this was unable to be completed. The dyads were to be divided in this fashion to determine if mechanisms change depending upon the child's level of knowledge of a motor activity. But as a result of the PDMS-2 assessment, all students were found to be within normal limits for their tossing ability. Instead, the pairing methodology was changed to reflect the children's vocabulary score on the PPVT-4. Following administration and scoring of the PPVT-4 protocols, dyads

were created by first ranking all of the participants' PPVT-4 scores. Then groups of two were created according to the ranking list of scores. For three of the dyads, the higher PPVT-4 scores began as the leaders and for the other three dyads, the lower PPVT-4 score was the leader first. This was done to counterbalance the groups in order to determine if a child's vocabulary knowledge effected leading during the learning activity.

The study began with the first dyad being introduced to a game that was created by the primary investigator for the purposes of this study (i.e., "Let's play a beanbag game"). The game included eight beanbags (four red and four grey; each beanbag is a 3 inch by 3 inch square) and a board (15  $\frac{3}{4}$  inch long by 10  $\frac{1}{2}$  inch wide) with a hole in the middle (3  $\frac{1}{2}$  inch hole) that was set up on the floor for the children to try to toss his/her color beanbag into. The materials may be familiar to some children, but were not used as the traditional game; this was to ensure that both children were learning the immediate performance task (game) at the same time. Beanbag tossing is an activity commonly used with kindergarten students (Breslin, Morton, & Rudisill, 2008). The game board was five feet away (as measured by a tape measure by the primary investigator) from a 24 inch round mat with a no slip bottom where each child stood when it is his/her turn to toss the beanbag. This distance was suggested by Johnson (2003) when tossing beanbags with young children.

At the beginning of each dyadic interaction, children were assigned to the role of tutor (leader) and tutee (learner). Assigning roles has been found in the literature as the predominant form of peer learning during dyadic interactions (Fuchs & Fuchs, 2005;

Topping, 2005). After assigning roles, the learning activity can begin. The primary investigator introduced the game to the children that served as the means to beginning the interaction between the peers. The following directions were provided by the primary investigator:

“The object of the game is to throw the bean bag into the hole in the center of the board. The leader will begin by deciding how to toss the beanbag into the hole. The leader will then have to teach the other player how to toss the beanbag exactly how they threw the beanbag. Each time the beanbag is tossed to the hole, how the beanbag is tossed should be different from the toss before. After 5 minutes, you will change roles and the leader will now be the follower to the game.”

The interaction continued for ten minutes as this amount of time has been used in previous peer learning dyads for kindergarten aged children (Rafdal, McMaster, McConnell, Fuchs, & Fuchs, 2011).

### **Data Collection**

The progression of study is represented in Figure 2.

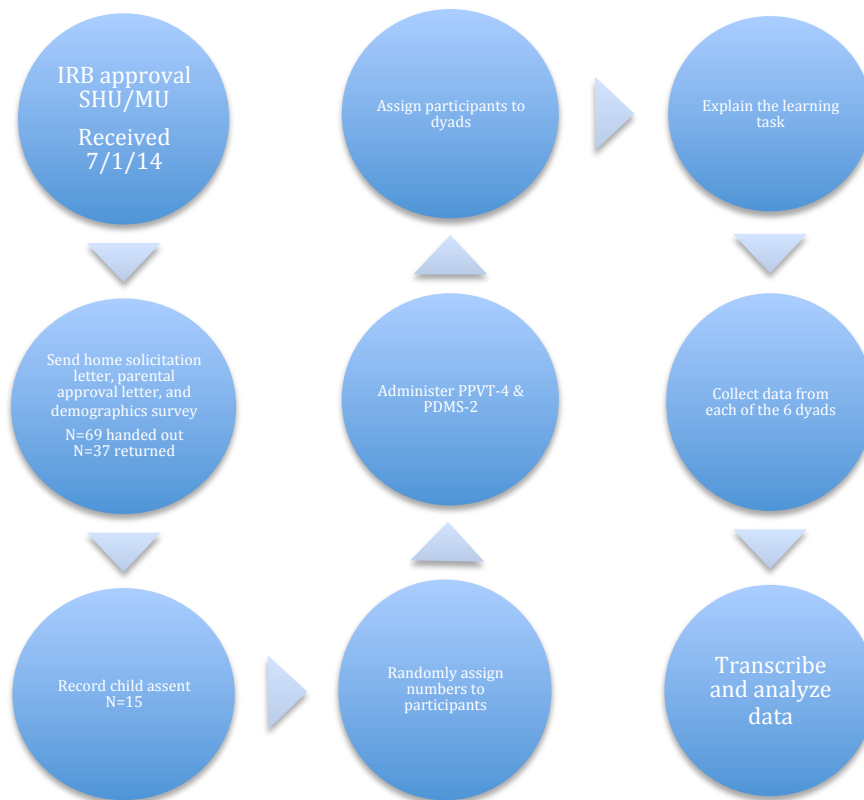


Figure 2. Flow Chart for Study

All information acquired from the participants (i.e., parental consent forms, assent forms, protocol forms from the PPVT-4 and PDMS-2, field notes sheets, video recordings, transcripts of the video recordings, and flash drive containing all data) has been kept in a secure, locked location in the primary investigator's home office. Permission was ascertained by the primary investigator on the informed consent form that stated if a report of this study is published, or the results are presented at a professional conference, all data collected such as videos would be presented in a way to protect the anonymity of participants.

For data collection, a Sony Bloggie HD video camera attached to a tripod was positioned on top of a table looking forward toward the peer dyad. Field note pages allowed the primary investigator to jot down observations and/or information that might be pertinent later to understanding what happened during the dyadic interaction. An example of what was written on the field notes page was learning mechanisms that stood out to the primary investigator such as asking for clarification. These notes served as reminders when transcribing the videos.

Prior to beginning the game, the primary investigator turned the video recorder on. The primary investigator observed the interaction and made note of anything that might be helpful in analysis on a field notes sheet. At the conclusion of five minutes (half-way through the peer learning interaction) the roles of the tutor was switched (the tutor became the tutee, the tutee became the tutor) by the primary investigator in order to balance out the interaction that in turn will allow for both children to have a turn being the leader. Switching roles within the same dyad has been used previously in peer learning dyads for kindergarten aged children (Fuchs & Fuchs, 2005; Rafdal et al., 2011). Originally the dyadic interactions were to be fifteen-minutes long, but this time frame was found to be too long for the participants and they lost interest in the activity. After the first dyad, the interaction time was reduced to ten-minutes long, which held the participants attention for the entire time. So following a ten-minute interaction, the children in each dyad were thanked for their participation and were returned to class by the primary investigator. The procedures were repeated until all six peer dyads (twelve

children in total) participated in the game. Once all of the children were finished, each one was thanked and brought back to their classroom.

At the conclusion of all six dyads, the primary investigator transcribed each ten minute interaction verbatim. To protect confidentiality, transcribed data only contained the numbers assigned to the participants', not any identifying information.

### **Data Analysis**

First, descriptive statistics was used for the demographics to describe the sample. Nominal information such as a participant's gender was collected. Ordinal data such as the age of participants and mother's education was also collected as this has been found to be related to what a child learns (Dollaghan et al., 1999; Hoff & Naigles, 2002; Miser & Hupp, 2012; Malmeer & Assadi, 2013). Frequency distributions were computed and reported.

To answer the research question, the transcribed data was analyzed for themes/mechanisms following an inductive approach as the data was collected, coded, and analyzed simultaneously (Creswell, 2013). Using an inductive process facilitated identification of relevant variables (i.e., mechanisms) while the identification of theoretical concepts was grounded in what was observed from the peer dyads. The videos were reviewed to determine what verbal and non-verbal mechanisms occurred during dyadic interactions that revealed peer learning. The primary investigator sought to determine if what was observed during the peer dyad interaction could be explained by the conceptual framework (Topping and Ehly, 2001).

The coding approach used for data analysis recognized what the children used during peer learning according to the a priori list of codes as well as the emergent codes applied to information that could be significant to describing peer learning. The primary investigator reviewed, transcribed, and coded all of the dyadic peer interactions including observations of non-verbal communications. As defined by Parr and Townsend (2002) observation is how children learn from watching each other. Watching each other allows children to in turn, believe that they too can do what they have observed. Parr and Townsend (2002) defined peer feedback as information gained from another person. Within both observation and peer feedback, processes for learning were also coded: modeling, imitation, prompting, positive or negative comments, and self-reinforcement. Modeling was defined as changes that occurred as a result of watching another person (Parr & Townsend, 2002). Imitation was defined as following the lead of another participant (Parr & Townsend, 2002). Prompting was defined as indicating to another to participate in the activity (Parr & Townsend, 2002). Feedback was defined and characterized as providing either positive or negative comments regarding the toss that was made (Topping & Ehly, 2001). Self-reinforcement was the student cheering for themselves during the activity (Topping & Ehly, 2001).

### **Trustworthiness**

Actions were taken to support trustworthiness of the data and findings for this study. First, assessment of the accuracy of the findings from this study was built upon the trust gained by the primary investigator with the participants (Creswell, 2013). The

students' classroom teacher introduced the primary investigator to the class even before the initial packets were sent home in the students' backpacks. Then, the primary investigator was re-introduced to the participants prior to talking to them about assenting to the research study. The students' classroom teacher was always within eyesight to promote comfort and the students were reminded to ask any questions that they may have. The establishment of credibility and dependability occurred through an audit of the coding and audit of the conclusions by the committee working with the primary investigator (Creswell, 2013). Additionally, transferability was attained through a thick description of the peer learning exchanges that can be considered when reviewing the transcript to determine if the finds have applicability in other contexts (Creswell, 2013). In the next section, analysis of data collection will be presented.



## Chapter IV

### RESULTS

#### Participants

The sample included twelve children who participated in the study (see Table 1). The children ranged in age from 5 years, 10 months to 6 years, 5 months old. Of the twelve participants, nine were males and three females. Even though the sample was collected during the summer, all of the children were still considered to be kindergarten students as they were not scheduled to begin first grade until the following September.

Table 1. Participants

Student #	Age (years/months)	Gender
1	6;2/74m	m
2	6;5/77m	f
3	6;0/72m	m
5	5;10/70m	m
7	5;11/71m	m
8	5;10/70m	m
9	6;4/76m	f
10	5;11/71m	m
11	6;5/77m	m
12	5;10/70m	f
13	5;9/69m	m
16	6;5/77m	m

## Dyads

The scores of the Peabody Picture Vocabulary Test, Fourth Edition (Dunn & Dunn, 2007) were used to create the six dyads (see Table 2 for PPVT-4 scores). The scores were ranked and then groups of two were created starting with the highest score. For three of the dyads, students with the higher PPVT-4 scores started as the leaders and for the other three dyads, students with the lower PPVT-4 scores were the leader first. This was done to allow both those children with the higher scores and those children with lower scores to have the opportunity to begin the interactions to determine if it changes the dynamics of the dyad.

Table 2. PPVT-4 Scores

<b>Student #</b>	<b>PPVT-4 SS</b>
1	93
2	111
3	103
5	87
7	108
8	119
9	101
10	96
11	103
12	106
13	129
16	94

## **Findings**

After reviewing the six videos of the dyads conducting their learning tasks and the transcripts of the sessions, the data was analyzed in relation to the research question,

What are the verbal and non-verbal mechanisms that occur during dyadic interactions with kindergarteners when presented with an immediate performance task?

### **Learning Mechanism of Observation**

The data revealed two learning mechanisms used by the kindergarten children. The first learning mechanism was observation. Observation was when one child turned and watched their peer during the learning activity. For example, in dyad two, after picking up all the bean bags, participant seven goes back to the blue circle where the participants stand and participant two looks over at seven and then assumes the position next to participant seven. Another example was from dyad three when participant three is seen looking over at participant eleven before making his or her toss with the bean bag. The second learning mechanism was peer feedback. Peer feedback is when one participant turned to their peer and either said something positive or negative to the other member of the dyad. An example of positive peer feedback was in dyad four, participant ten taps participant nine on the arm after the toss and said:

“Good job”.

An example of negative feedback was found during dyad five when participant sixteen turned to participant one and said:

“No, you’re a cheater”.

Observation and peer feedback were two learning mechanisms described by Parr and Townsend (2002). Interestingly, a third learning mechanism, social comparison, Parr and Townsend (2002) associated with peer learning was not noted in this study’s data. Social comparison is defined as the students finding similarity or differences between each other (Parr & Townsend, 2002). This may be because this study was a one time occurrence. The children would need additional opportunities to learn about how each other feels about school and their values. Upon additional analysis of the data, it was noted that observation included the processes of modeling, imitation, and prompting (see Table 3 for the processes associated with observation) and peer feedback included self-reinforcement, positive feedback, and negative feedback (see Table 4 for the processes associated with feedback).

Table 3. Processes Associated with Observation

<b>Processes</b>	<b>Totals</b>	Dyad 1	Dyad 2	Dyad 3	Dyad 4	Dyad 5	Dyad 6
Modeling non-verbal	<b>1</b>	0	0	0	1	0	0
Modeling + verbal	<b>4</b>	2	1	0	0	0	1
Imitation	<b>7</b>	0	1	0	1	0	5
Prompting-verbal	<b>31</b>	1	3	8	7	6	6
Prompting-non-verbal	<b>14</b>	0	1	2	5	4	2

In order to understand how these codes were identified, examples of participants' actions (non-verbal communications) and verbalizations are provided. In this study the following terms were defined and used: Modeling was defined as changes that occurred as a result of watching another person, imitation was defined as following the lead of another participant, prompting was indicating to another to participate in the activity, feedback was characterized as providing either positive or negative comments regarding the toss that was made, and self-reinforcement was the student cheering for themselves during the activity.

From the six dyads, the three processes that were associated with the learning mechanism of observation were modeling, prompting, and imitation (see Table 3). The process that was observed the most was prompting, but even more specifically, verbal prompting in order to keep the game moving and keep the student whose turn it was

focused on the task at hand. For example in dyad two, participant seven provides verbal prompting to participant two when saying:

“Gonna get it?”

Another example of verbal prompting occurred in dyad three when participant eleven looks over at participant three and provides verbal prompting and non-verbal prompting when providing an arm gesture and saying:

“Toss it this way.”

In dyad four, participant ten provided an example of verbal prompting to get participant nine’s attention when stating:

“Okay. You’re just going to throw like this, okay?”

During dyad five, participant sixteen provided verbal prompting to get participant one’s attention:

“Okay (1), it’s time.”

Similar, in dyad six, participant fourteen wanted participant five to start, so provided a verbal prompt to get participant five to begin:

“Go.”

The second most frequent observation process that was noticed was non-verbal prompting. Participant ten in dyad four revealed this when the following action was noticed:

First, participant ten made eye contact with participant nine. Then, participant ten showed participant nine how to hold the beanbag prior to tossing it by stretching out their hand with the beanbag in it for participant nine to follow.

Another example of non-verbal prompting occurred in Dyad five when the following was noticed:

Participant sixteen walked over to participant one, hooked an arm around participant one's arm and then guided participant one back to the starting point.

Table 4. Processes Associated with Feedback

<b>Processes</b>	<b>Totals</b>	Dyad 1	Dyad 2	Dyad 3	Dyad 4	Dyad 5	Dyad 6
Self-reinforcement	<b>63</b>	11	7	18	13	12	2
Feedback positive	<b>6</b>	1	0	3	2	0	0
Feedback negative	<b>9</b>	0	0	1	0	8	0

### **Learning Mechanism of Feedback**

For the learning mechanism of self-feedback, the three processes that were found to be associated with peer feedback were positive feedback, negative feedback, and self-reinforcement (see Table 4). Feedback was characterized as providing either positive or negative comments regarding the toss that was made. Self-reinforcement was the student cheering for him or herself during the activity. Out of all the processes

used during the dyadic interactions, self-reinforcement was observed the most. In dyad one, an example of self-reinforcement was heard when participant thirteen stated:

“Oh, that was so good.” After tossing the beanbag toward the target.

In another example of self-reinforcement in dyad two, participant seven is heard saying:

“Yes!” after the beanbag fell into the hole on the board.

Similar to dyad two, in dyad three, participant eleven was observed multiple times saying:

“Yes!” after the beanbag fell into the hole and even pumping an arm in excitement.

In dyad five, stating “yes” was also heard by participant one and sixteen after tossing the beanbag, even if the beanbag did not fall into the hole.

What was rarely observed was one participant positively reinforcing another. In a rare occurrence from dyad three, participant eleven was observed to say:

“Oh, nice one.” To participant three after three tossed the beanbag into the hole.

And in dyad four, participant ten tapped participant nine on the arm and said:

“Good job.”

Dyad one, which used limited processes to teach each other, used verbal prompting more than non-verbal prompting. Dyad two used more processes overall than dyad one, but also used limited processes to teach each other. Dyad three only used prompting when interacting with each other. Dyad four used prompting the most, but even more specifically, used verbal prompting. Similar to dyads two and three, dyad five



used only prompting and similar to dyad four, used verbal prompting more than non-verbal prompting. Overall, what was seen during the dyads was that students were not openly modeling for each other or looking over at each other in order to imitate what each other were doing. The students were observed to look forward and toss the beanbag however they felt comfortable with.

Interestingly, the learning mechanism of effectiveness which is associated with the theoretical framework proposed by Topping and Ehly (2001) was observed but less consistently. The learning mechanism of effectiveness is associated with modeling, error detection, diagnosis, correction, and prompting. An example of effectiveness was seen in dyad one when participant 13 corrects participant eight by saying:

“No I didn’t do it like that. I was like (demonstrates the toss of the beanbag.)”

### **Unexpected Observations**

In addition to the above quotes and behaviors that were noticed to support the findings that have been identified, there were two unexpected observations. First, was the type of play that was observed during the dyads. Following data collection and analysis, the type of play observed was parallel play. This type of play is common between the ages of one to three years old and is characterized as when children play in each others company, but do not actually interact (Berkhout, Bakkers, Hoekman, & Goorhuis-Brouwer, 2013). What makes this finding interesting is that kindergarten aged children should be participating in cooperative play where children work together to play a game or complete an activity (Berkhout et al., 2013). Another unexpected observation

was when a student looked toward the primary investigator to ask for clarification instead of their peer to answer their question. In dyad one, participant eight turned to the primary investigator and asked:

“So like I have to do it the same as he did?”

Another example of asking the primary investigator for clarification also occurred in dyad one when participant thirteen asked:

“So we have to do what we did before?”

### **Affective Connection**

There is an affective component to learning. Learning is based on trust (Topping & Ehly, 2001) that needs to be developed between peers. The trusting relationship allows for the peers to help and influence each other in a non-threatening, non-authoritative manner. Additionally, the relationship should allow for the peers to practice and critique each other without feeling threatened. The peer dyads in this study did not have the time to get to know each other and develop an affective connection. This finding may have effected the outcome.

The final section will provide further discussion of the findings and conclusions regarding the study.

## Chapter V

### DISCUSSION AND CONCLUSIONS

The goal of this study was to identify the verbal and non-verbal learning mechanisms that occur during dyadic interactions with kindergarten students. Parr and Townsend (2002) identified three major learning mechanisms that underpin peer learning: social comparison, peer feedback, and observational learning. Social comparison is defined as the students finding similarity or differences between each other (Parr & Townsend, 2002). Peer feedback is when one participant turned to their peer and either said something positive or negative to the other member of the dyad. Observation was when one child turned and watched their peer during the learning activity.

Topping and Ehly (2001) identified effectiveness as a learning mechanism for peer learning interactions. As per Topping and Ehly (2001), effectiveness is associated with modeling, error detection, diagnosis, correction, and prompting. Following analysis of the study, the learning mechanisms that the students were observed utilizing were observation and feedback. Examples of observation were illustrated as students modeling the beanbag tossing for each other and imitating what the other student was doing. Examples of feedback were the students prompting each other both verbally (e.g., “go”) and non-verbally (e.g., tapping on the arm) and positive or negative

reinforcement (e.g., “good job.”). The learning mechanisms from Topping and Ehly (2001) and the two found in this study that are the same could have a commonality such as being foundational in nature. The learning mechanisms could be necessary for all peer learning to occur.

When reflecting upon why observation was one of the learning mechanisms present in the dyads, one may infer that it stems from earlier learning experiences. As noted in the literature review, children’s early learning experiences are based upon the behaviors observed from their parents (Girolametto & Weitzman, 2002). In support of learning about observation early on, Chapman (2000) described how learning grows as a result of communicative functions occurring from observed behaviors. The experiences children gain from parents (Girolametto & Weitzman, 2002) and from early observation (Chapman, 2000) bring together the notion that children learn through early experiences by observing others in their environment, which for children is primarily their parents. Bohnannon and Bonvillian (1997) found the observation of others is another contributing factor to a child’s knowledge base. By watching what is happening in their own environment, children are learning, growing, and adding to their own knowledge. Additionally, as found by Pungello et al. (2009), Fitzgerald et al. (2013), and Miser and Hupp (2012), how attentive a mother is to their child has been linked to what a child learns. Attentive mothers are following their child’s lead by observing the child in his/her environment and finding meaning during their interactions. For example, attentive mothers label what their child is looking at or trying to recast the activity that

they are participating in together. Through these daily interactions, children are learning to observe through the observation of their own parents.

Sensitivity may also play a role in learning how observation is used as a mechanism for learning. Sensitivity is defined as how aware parents are to their child (Pungello et al., 2009). Children whose parents are found to have increased sensitivity are responsive to the wants and needs of their child as well as provide their child with interactive environments (Girolametto & Weitzman, 2002; Pungello et al., 2009). For example, children of parents who have increased sensitivity learn through observation that if they cry, they get a bottle. Also, when a parent follows the lead of his/her child during play, the child is learning that when the parent watches what the child is doing, the parent responds back to the behavior. Sensitive parents also provide an interactive environment for reciprocal verbal and non-verbal exchanges (Pungello et al., 2009). For example, an exchange would be turn-taking where the parent responds to what they think the child is saying, trying to say, or gesturing even when they do not know what the child is saying. These give and take exchanges can only occur if both the parent and child are observing each other. In turn, when children experience sensitivity, the experience they are having may in turn promote the connection that the dyads are trying to achieve. In other words, children who experience sensitivity are learning how to use effectively use turn-taking skills and maintain an interaction. Additionally, children may also learn to trust that the peer that they are working with understands them and will

respond to the child's needs. Therefore, one might infer that observation is a learning mechanism that the child is learning to use before any formal instruction ever occurs.

The learning mechanism of feedback cannot occur in isolation. With that in mind, feedback could be considered a secondary feature to observation, as feedback cannot occur if you are not observant or sensitive as to what is happening during peer learning. Learning how to use feedback can also be linked back to a mother's nurturing style and their productivity with their child (Abraham et al, 2013). As productivity is defined as how much information is conveyed to a child, children learn at a young age to respond back to learning behaviors such as modeling and taking or providing feedback that they have observed in their environment. Therefore, a child has to understand how to learn through observation in order to provide feedback to their partner during peer learning.

It is possible that the four types of language described by Chapman (2000) that are used by parents when responding to their child may also play a role in students learning how to provide feedback to others. If a parent uses expansion (e.g., add to what a child is saying), recasting (e.g., repeat what a child is saying), commenting (e.g., provide information based upon what a child is saying), following a child's lead (e.g., keeps the conversation based upon a child's interests), and using referential language, a child would indirectly learn these behaviors as the child goes about his/her day. And through repetition of the behaviors, the child may learn how to use these same behaviors when working with others. Parents are their child's first teachers.

Additional opportunities for learning how to interact with others come from interactions with siblings. Brody (2004) found children encounter varying types of interactions when playing with a sibling as opposed to playing with parents. This could be observing their older sibling take the lead in a game or having to explain the rules to a new game to a younger sibling. The variety of interactions could be due to age, learning how to work in a give and take situation, or learning how to provide feedback to the activities taking place.

When children eventually move into a school environment, the impetus for learning shifts from parents and siblings to teachers. Girolametto and Weitzman (2002) found teachers need to be as responsive as parents to continue language development in children because the experiences children have in school shape language learning due to the amount of time they spend in school. This provides an additional opportunity for children to practice observation for the purpose of learning and how to provide feedback in a practical environment.

Both observation and feedback are important learning mechanisms found in the literature for both nurturing of children by their parents and teachers, but it is important to point out the learning mechanisms that were not observed during this study. Cognitive restructuring and internalization (Parr & Townsend, 2002) were not observed in the study. Cognitive restructuring involves providing explanations, clarifying, and/or reorganizing of information to help in the understanding of what is being learned. Internalization incorporates thinking about what you need during learning and what your

peer partner also needs. Cognitive restructuring and internalization would have been observed if the participants provided explanations to each other. However, the opposite of this was observed as a child turned to the primary investigator for clarification instead of their peer:

“So like I have to do it the same as he did?”

“So we have to do what we did before?”

This may be due to the child assuming that the primary investigator has the answer. It could also suggest that the students who are first learning a task are more comfortable asking questions to an adult who knows the task instead of their own peer.

To summarize, the learning mechanisms of effectiveness and social comparison were not observed during the dyads. Effectiveness is accomplished through the processes found in Topping and Ehly’s (2001) conceptual framework such as organization and engagement, cognitive conflict, and affect. This would have been observed if students created goals, took what they learned and moved forward with the new information as well as took ownership of their learning. Motivation is also a component of internalization that includes self-regulated learning, beliefs about academic competence, attitudes to learning, and expectations for success. Moreover, the limited affective connection could be due to a self-confidence or trust issue between the peers. Peers working together need to develop trust and self-confidence with each other in order to establish a foundation for learning together (Topping & Ehly, 2001). This could even be considered the first phase in developing a peer learning relationship.

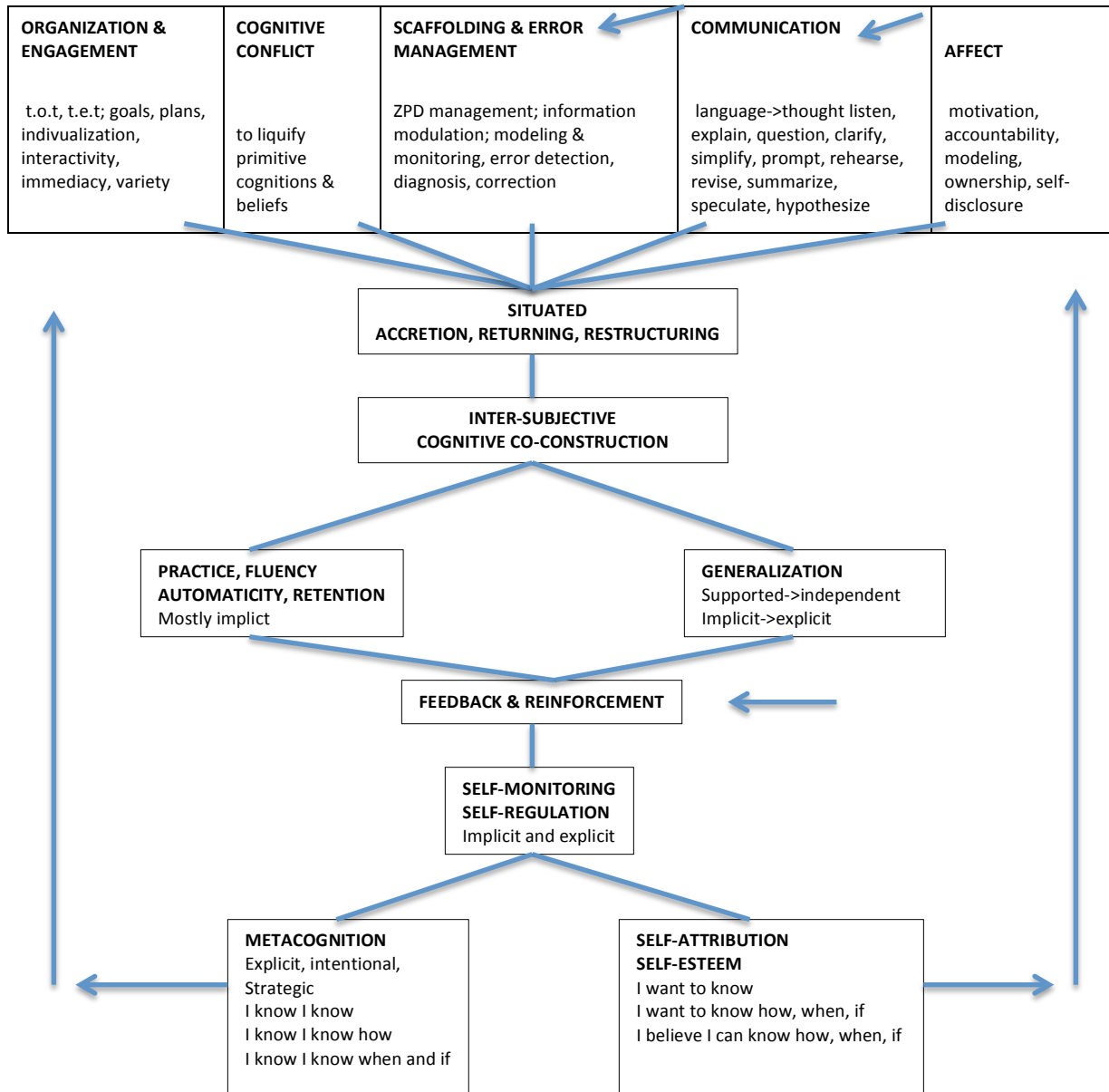


It is possible that the learning mechanism of effectiveness was not observed in its entirety and only pieces of it was observed during this study because of the cognitive skills necessary for success. Kindergarten aged children are not cognitively ready to think abstractly or may not even have enough vocabulary to do so (Topping & Ehly, 2001). Parr and Townsend (2002) discuss how children need to restructure their own learning to be able to provide explanations and to teach others, which is a difficult task to do. But, through modeling, students may be able to learn what they should be doing.

The mechanism of social comparison may not have come into play during the dyadic interaction in the study. Students have to perceive themselves as similar to their peer for social comparison. With the participants being randomly assigned to dyads and then beginning the activity, they may not have had the time to do this. The participants may have needed additional time for this mechanism to come into play.

### **Conceptual Frame**

The data collected from this study partially fits with what was found in the conceptual framework developed by Topping and Ehly (2001).



In iterative cycles: Surface-> Strategic-> Deep Declarative-> Procedural-> Conditional

FIGURE 3. Conceptual Framework for Peer Learning (Topping & Ehly, 2001)

This study found observation and feedback to be the learning mechanisms that kindergarten age children use during peer learning. Observation and feedback are associated with some of the processes associated with Topping and Ehly's (2001)

conceptual frame. The processes that are associated with the learning mechanism of effectiveness that occurred during this study's dyadic interactions were modeling, error detection, diagnosis, correction, and prompting. The processes of organization and engagement, cognitive conflict, or affect including motivation and accountability were not noted during the dyadic interactions. Organization and engagement would have been observed if both partners created a plan for their time together. Cognitive conflict would have been observed if the child who was acting as the leader during the dyadic interactions understood the follower's learning beliefs and detected when learning was not occurring. Finally, affect would have been observed if the students exhibited loyalty, accountability, or motivation to remaining on task or built trust between the peers.

According to Parr & Townsend (2002), these processes require the child to use thinking skills to self-regulate and think about one's own thinking and learning. Thinking about one's own thinking and self-regulating learning are not skills taught by teachers, especially in kindergarten (Topping & Ehly, 2001). Additionally, the relationships peers develop together are the foundation to the peer learning interaction and the basis for the attitudes toward learning (Parr & Townsend, 2002). Each developing relationship impacts the mechanisms that are used during peer learning since each child will bring a different knowledge base and a different set of attitudes towards learning to the relationship.

What was interesting upon review of this study's data was the presence of what can be considered an additional mechanism that was not part of the initial framework

that was asking for clarification. Why did the students ask for clarification? Asking for clarification for the purpose of learning may have been observed due to the newness of the immediate learning task. Moreover, the children may not have felt comfortable asking questions to another student who is learning the task at the same time. The children looked to the primary investigator who was seen as the expert since that was who knew what to do in order to complete the task. Additionally, based on this, it can be speculated that students may not be ready to teach a concept that is new to them as the children did not see each other as experts when first learning a task. Therefore, one possible reason asking for clarification wasn't represented in Topping and Ehly's (2001) theory could be the possibility of a new phase in the peer learning process that has not been identified: the development and establishment of trust as a pre-requisite to learning. If children do not have trust or familiarity with the topic, the adult in the room represents the needed knowledge that is missing from their understanding (Topping & Ehly, 2001). Once the children build trust and familiarity with each other, this may reduce the need to ask for clarification from an adult and the children turn to each other.

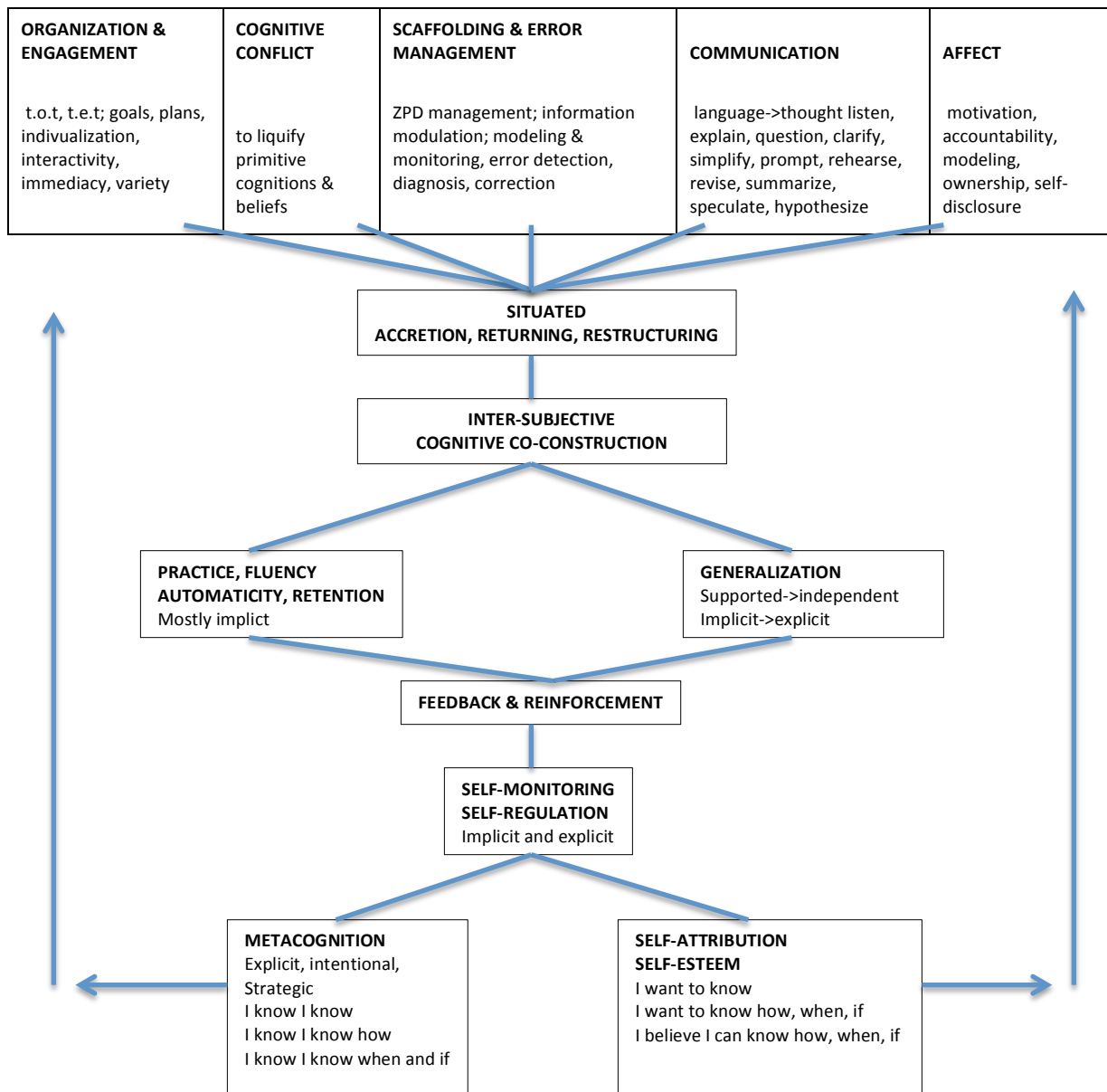
There is also an additional possibility why children turned to the adult in the room to ask for clarification. First, parent influence may be a potential confounding factor on how children see the adult in the room. If they are taught that adults have the answers, this may influence whom the child turns to first when faced with a question when an adult is present. Additionally, the fact that children depended upon the adult in the room is part of the normal classroom environment to which they take part of when at school.

Early in their school experiences, children learn rules such as asking a teacher for clarification when they have a question. The children in this study appeared to have used this rule system to which they are probably socialized into their natural environment. This suggests peer learning is a phenomena that occurs in different phases with initial tasks may rely on an adult presence for tactical guidance at the onset of a dyadic interaction. The affective support that an adult can provide may help build the foundation of trust and self-confidence found to be a component of the mechanism of effectiveness.

Another interesting observation from the dyads was the type of play that the children participated in. The children in this study were observed participating in parallel play during the activity. For example, in dyad three, both of the participants stood in the same starting spot, played the beanbag game without looking over at each other. It was as if both of the children were playing their own game independent of the other. Berkhout, Bakkers, Hoekman, and Goorhuis-Brouwer (2013) characterized parallel play as children playing in each other's company, but not actually interacting with one another. What made this observation interesting was that parallel play usually ends by the time a child turns three (Berkhout et al., 2013). Kindergarten aged children should be participating in cooperative play where children are working together to play a game or complete an activity (Berkhout et al., 2013). Spending time learning a new game would build familiarity. The familiarity would in turn build a level of knowledge and confidence necessary to gain the ability to talk about the game with a peer. But, since

this was a new activity for the children, the children may need to play by themselves to learn the activity before turning to a peer to play together.

An additional interesting finding from this study was the use of self-reinforcement and feedback. During this study, feedback presented itself in both positive and negative forms. Feedback is a component of Topping and Ehly's (2001) framework that follows practice, automaticity, and generalization, not as a specific process that influences the mechanism effectiveness. But, Topping and Ehly (2001) allow for feedback to occur during the learning mechanisms. Topping and Ehly (2001) propose that feedback and reinforcement aid in the learning process, not a stand-alone process that makes learning happen. Feedback could have occurred as a learning mechanism in this study because of the competitive nature of the task and children trying to make themselves feel good about what they were doing. The task from this study did not create the type of engagement that normally would occur during a peer learning activity such as practice leading to generalization of a new skill. The children already knew how to toss a beanbag. What they were supposed to do is teach their peer a new way to toss a beanbag.



In iterative cycles: Surface-> Strategic-> Deep Declarative-> Procedural-> Conditional

FIGURE 4. Conceptual Framework for Peer Learning (Topping & Ehly, 2001)

## **Practical Implications**

There are practical implications based on the findings from this research. In a school context, with children now being expected to collaborate with peers in order to meet learning standards beginning in kindergarten through 12<sup>th</sup> grade due to the Common Core Standards (National Governors Association Center for Best Practices, Council of Chief State School Officers, 2010) these findings can provide recommendations to teachers for how to promote peer learning in the classroom. For example, knowing that observation and feedback are learning mechanisms used by kindergarten children, a teacher could model more difficult processes for the children to develop the skills necessary to enhance peer learning. Teachers need to be aware of the metacognitive needs of peer learning (i.e., teaching children to think about his or her own learning) as teaching these skills are not necessarily part of the learning process. Additionally, learning would shift from depending on the support of an adult to moving to relying on his or her peer during the learning process (Topping & Ehly, 2001). The Common Core Standards have elevated the importance of understanding what learning mechanisms children use during peer learning interactions. Based on this study's findings, teachers will understand what to expect from kindergarten ages students and what learning mechanisms they need to address for children to use them.

In addition to knowing what learning mechanisms children use in peer learning in kindergarten, teachers should be aware that familiarity with a topic to be learned may increase the likelihood that children will interact with each other. As observed in the



dyads, the children participated in parallel play instead of cooperative play. The children were observed playing their own game at the same time as their peer as they would if they were participating in parallel play. Developmentally, the children should have outgrown this type of play by the time they turned three years old (Berkhout et al., 2013). So teachers should utilize teaching environments and tasks that promote the behaviors necessary for peer learning. For example, when introducing a new topic, focus on familiarizing the children with the topic, and then gradually introduce a peer learning strategy as familiarity to the topic increases. Also, teachers could provide instruction on how and when to ask questions to his or her peer as well as model words of encouragement to use with peers when working together.

In addition to familiarity to a topic, children need to have familiarity with each other. The implication regarding this finding is that reliance on peer learning may increase over time as trust between peers increase. This will likely require some time together and experiences of friendship and practice working together. The only way to develop this type of familiarity would be over time that was not provided during this study.

Teachers also need to take into consideration the affective needs of the students such as the necessary trust for peer learning to occur. If peer learning is a process, teachers need to make themselves available to help children establish the trust and self-confidence necessary for a successful peer learning relationships to develop. Teachers would need to teach the learning mechanisms and the components of the learning

mechanisms that are used during peer interactions such as establishing trust and self-confidence, how to build goals for learning, and team building. Also, teachers need to be aware of the complex nature of metacognition. For children, it is not natural to think about their own learning and how learning occurs. Their classroom teacher needs to act as a guide in the learning process and make their students aware of how learning occurs to start the process in developing critical thinking skills necessary for peer learning to occur. Additionally, when children move through the process of learning to be a helper and receiving help from peers during learning, this may not be a natural progression for them. The children may need support in the form of sensitivity from the classroom teacher until working with a peer becomes a natural part of the learning process.

While the above practical implications apply to teachers in a classroom environment, there are also practical implications for therapists who work with kindergarten students. Each mechanism and process for peer learning has implications that reach outside of the classroom. For example, when a physical therapist or an occupational therapist works on a particular behavior or skill, the therapist could have the child explain or model the behavior back, to demonstrate understanding. Regardless of the therapeutic goal being addressed, therapists are indirectly addressing effectiveness of their own goals. Also, with observation being a vehicle for teaching new behaviors, children are watching and learning all the time, even during therapy situations. For example, if a therapist is having difficulty with motivation and

accountability of a particular goal they are working on with a child, they would indirectly be addressing the learning mechanism of affect. Another example of working on learning mechanisms during therapy would be having the student take part in the monitoring and error detection of their own goals. This would also be indirectly supporting the learning mechanisms that the children are using in their classroom environments. All interactions in therapy should be expected to extend back into the classroom when children are working with peers.

### **Theoretical Contributions**

In considering this study's findings concerning peer learning in relation to the learning mechanisms identified in the conceptual frame, this study provides support for some of the conceptual frame's learning mechanisms but not all of the conceptual frames learning mechanisms. Following data collection and analysis, the learning mechanisms found during peer learning in kindergarten children were observation, feedback, and some of the mechanism of effectiveness as discussed by Parr and Townsend (2002) and demonstrated by Topping and Ehly's conceptual framework (2001). For kindergarten, some of the processes associated with the mechanism of effectiveness that occurred during the dyadic interactions were modeling, error detection, diagnosis, correction, and prompting are found. The processes that appear to be beyond the scope of a kindergartener is organization and engagement, cognitive conflict, or affect including motivation and accountability did not occur during the dyadic interactions. There is the possibility that the processes may not have been observed

because the task did not require the children to use them as well as the environment did not expect it. What best explains the phenomena of peer learning is that kindergarten children are still learning and engaging with peers in a way that they have observed themselves (i.e., asking an adult for clarification instead of their peer). Also, they need to have a level of familiarity with a task in order to move forward and interact or teach the new task to a peer. With increased familiarity to task and observation of the additional processes necessary for the mechanism of effectiveness, kindergarten children should develop the additional skills necessary to enhance their peer learning interactions. In addition to familiarity with the task, the children need to have a level of familiarity with each other. This study paired students that had not worked together previously that could have also limited the amount of interaction between the children.

The results found in this study pose some new questions as to what happens during peer learning in kindergarten age children. This age group of children may only utilize a few learning mechanisms when using peer learning. This would be a result of the children first learning about the skills needed for peer learning to be successful. The activity chosen for the study was new to the children, which may have led the children to not feel competent enough to be the authority in the learning. This may have led the students to keep to themselves and not try to lead their peer partner. Also, kindergarten age children are still learning how to learn and think about their own learning, as this is a higher level thinking skill that they are not ready for yet. At this point in time, the results do not warrant a simpler conceptual frame, but a different lens to look at peer learning to

determine if the activity and the environment did not allow for an optimal peer learning interaction.

### **Limitations**

All studies have limitations and this study has several. First, it appears that some factors might have influenced the learning mechanisms that were found during the dyadic interactions. For peer learning to be successful, the students should have a level of comfort with each other (Topping & Ehly, 2001). So one limitation of this research is that the participants were from newly formed classes and had not had time to develop friendships yet. If the class was together for a longer period of time and the students had an opportunity to develop rapport with each other, they may have developed stronger learning relationships. Due to the ranking of the PPVT-4 scores, some of the dyads were from different classrooms. These participants had never met each other before the interaction and had no relationship with each other whatsoever. This could have led to a lack of verbalization during the dyadic interaction. Also, children may not have had a level of familiarity with the task that caused them not to talk to each other as they were learning about the task themselves. This may have led to parallel play instead of cooperative play during the dyadic interaction.

The choice of the beanbag game may have limited the learning mechanisms observed. The chosen task brought out a competitive side of some of the children that may have hindered their desire to help their peers, as they wanted to win more than anything else. A task that does not involve an activity that children could consider to be

competitive in nature may similarly reduce the parallel play that was observed and provided more of a cooperative learning environment. While there could be many activities where children are engaged in peer learning, the selection of the activity for this study was based upon beanbag tossing is an activity commonly used with kindergarten students (Breslin, Morton, & Rudisill, 2008).

An additional limitation was the readability score of the directions. Even though the readability score of the directions was found to be in the fairly easy range (79.8), sentence length was found to be too long for kindergarten students (Grade level 6.8). Albeit the sentence length was long, it cannot be assumed that this impacted the interaction because the children followed the directions set out for them.

### **Suggestions for Further Research**

1. As the peer learning theory that emerged from this study only identified limited learning mechanisms, future research could determine if the learning mechanisms remain the same or if additional learning mechanisms are present as students get older. As the peer learning theory that emerged from this study only identified limited learning mechanisms, repeating the learning activity with 1<sup>st</sup> graders would determine if maturation adds to a child's ability to use additional learning mechanisms or if students need to be taught the additional learning mechanisms.
2. As this study only looked at a one time peer learning interaction with the dyads using an unfamiliar learning activity, future research could collect data over time

from the peer dyads to determine if children play cooperatively instead of in parallel form when working together if they are more comfortable with the learning activity or with their peer. The inclusion of an additional data collection point instead of only one data collection point would determine if an immediate learning environment inhibits children from feeling comfortable or trusting their peer enough to ask questions to their peer and not the adult in the room.

3. Studying the possibility of whether early peer learning dyads should be viewed as a phased learning process that may require some adult interaction until trust and self-confidence has been established.
4. As this study was completed in the child's natural environment and not a clinical context, testing peer learning in a clinical context where the primary investigator is not in the room may yield different results. Not having an adult in the room may be the impetus that makes the children ask each other for clarification when a question arises.
5. Since this study introduced a new game that yielded the children playing in a parallel manner instead of cooperatively, allowing the children to familiarize themselves with the game may change the results. If the children familiarize themselves with the game, have a period of time that they don't play the game, and then are reintroduced to the game for the peer learning activity the type of play that was observed may change. This may change the play during the peer interaction because the children could develop a connection to the game and

trust that they know what they are doing in turn, building their self-esteem and confidence to the activity.

### **Summary**

Children spend a great deal of their time in the company of other children. The power of influence of one child over another child allows for the assumption that peers can motivate, inspire, or even guide peer learning without even knowing it (Parr & Townsend, 2002). What was found from this research is that kindergarten age children use only a few learning mechanisms during peer learning interactions. For example, kindergarten children were observed to use the learning mechanisms of observation and feedback. Observation was seen when the peers made eye contact with each other or provided non-verbal prompting such as guiding their peer back to the starting point. Feedback was observed as self-reinforcement when one of the peers was proud of themselves when tossing the beanbag.

While using the learning mechanisms of observation and feedback, both verbal and non-verbal processes were supported. The learning mechanism of effectiveness was partially observed, with only some of the processes exhibited during the dyadic interaction. What still needs to be taught are the higher level thinking skills associated with affective connection that are also necessary for peer learning to be successful. With support from teachers and therapists, kindergarten age children should be able to explicitly be observed using the other components of the effectiveness learning mechanism that they may implicitly know but need help with to strengthen their ability to



gain, support, and foster peer learning. In conclusion, it may be assumed that it is known what occurs during peer learning because it is often used, but what is actually occurring during peer learning still remains unclear. With the Common Core Standards setting expectations for learning as a component for meeting college and career readiness, children will have to be proficient at learning in collaborative ways with diverse groups of partners. Further research is necessary to clarify what is really occurring during peer learning interactions in order to strengthen peer learning.

## REFERENCES

- Barnett, W.S., Carolan, M.E., Fitzgerald, J., & Squires, J.H. (2012). *The state of preschool 2012: State preschool yearbook*. New Brunswick, NJ: National Institute for Early Education Research.
- Berkhout, L., Bakkers, H., Hoekman, J., & Goorhuis-Brouwer, S.M. (2013). Observing free play in classrooms with an instrument based on video analysis. *Early Child Development and Care, 183*(1), 125-136.
- Biemiller, A., & Slonim, N. (2001). Estimating root word vocabulary growth in normative and advantaged populations: Evidence for a common sequence of vocabulary acquisition. *Journal of Educational Psychology, 93*(3), 498.
- Breslin, C. M., Morton, J. R., & Rudisill, M. E. (2008). Implementing a physical activity curriculum into the school day: Helping early childhood teachers meet the challenge. *Early Childhood Education Journal, 35*(5), 429-437.
- Chapman, R.S., Sindberg, H., Bridge, C., Gigstead, K., & Hesketh, L. (2006). Effect of memory support and elicited production on fast mapping of new words by adolescents with Down Syndrome. *Journal of Speech, Language, and Hearing Research, 49*, 3-15.
- Coll, C. G., & Garrido, M. (2000). Minorities in the United States. In *Handbook of developmental psychopathology* (pp. 177-195). Springer US.
- Creswell, J.W. (2013). *Qualitative Inquiry and Research Design: Choosing Among Five Traditions (3<sup>rd</sup> Edition)*. Thousand Oaks, CA: Sage Publications.
- Delquadri, J., Greenwood, C.R., Whorton, D., Carta, J.J., & Hall, R.V. (1986). Classwide peer tutoring. *Exceptional Children, 52*(6), 535-542.
- Dunn, L.M. & Dunn, D.M. (2007). *Peabody Picture Vocabulary Test, Fourth Edition*, Minneapolis, MN: Pearson Assessments.

- Fuchs, D. & Fuchs, L.S. (2005). Peer-assisted learning strategies: Promoting word recognition, fluency, and reading comprehension in young children. *The Journal of Special Education, 39*(1), 34-44.
- Girolametto, L. & Weitzman, E. (2002). Responsiveness of child care providers in interactions with toddlers and preschoolers. *Language, Speech, and Hearing Services in Schools, 33*, 268-281.
- Greeno, J.G., Collins A.M., & Resnick, L.B. (1992). Cognition and Learning. In B. Berliner & R. Calfee, *Handbook of Educational Psychology*, NY: Simon & Shuster MacMillian.
- Hanushek, E.A., Kain, J.F., Markman, J.M., & Rivkin, S.G. (2003). Does peer ability affect student achievement. *Journal of Applied Econometrics, 18*, 527-544.
- Heibeck, T.H. & Markman, E.M. (1987). Word learning in children: An examination of fast mapping. *Child Development, 58*, 1021-1034.
- Henry, G.T. & Rickman, D.K. (2007). Do peers influence children's skill development in preschool? *Economics of Education Review, 26*, 100-112.
- Hoff, E., & Naigles, L. (2002). How children use input to acquire a lexicon. *Child Development, 73*(2), 418-433.
- Johnson, I. (2003). Skill development and fitness activities for elementary students. *Strategies, 16*(3), 14-17.
- Justice, L.M., Petscher, Y., Schatschneider, C., & Mashburn, A. (2011). Peer effects in preschool classrooms: Is children's language growth associated with their classmates' skills? *Child Development, 82*(6), 1768-1777.
- Massey, S.L. (2004). Teacher-child conversations in the preschool classroom. *Early Childhood Education Journal, 31*(4), 227-231.
- Mastropieri, M.A., Scruggs, T.E., & Berkeley, S.L. (2007). Peers helping peers. *Educational Leadership, 64*(5), 54-58.
- McGregor, K.K. (2000). The development and enhancement of narrative skills in a preschool classroom: Towards a solution to clinician-

- client mismatch. *American Journal of Speech-Language Pathology*, 9, 55-71.
- McMaster, K.L., Fuchs, D., & Fuchs, L.S. (2006). Research on peer-assisted learning strategies: The promise and limitations of peer-mediated instruction. *Reading & Writing Quarterly*, 22, 5-25.
- Michaels, S. (1981). "Sharing Time": Children's narrative styles and differential access to literacy. *Language Society*, 10, 423-442.
- National Governors Association Center for Best Practices, Council of Chief State School Officers. (2010). *Common Core State Standards (English Language Arts Standards: Speaking and Listening)*. National Governors Association Center for Best Practices, Council of Chief State School Officers, Washington D.C.
- Parr, J.M. & Townsend, M.A.R. (2002). Environments, processes, and mechanisms in peer learning. *International Journal of Educational Research*, 37, 403-423.
- Portney, L.G. & Watkins, M.P. (2009). *Foundations of Clinical Research Applications to Practice (3<sup>rd</sup> Ed.)*. Upper Saddle River, NJ: Pearson.
- Pinker, S. (2003). Language as an adaptation to the cognitive niche. *Studies in the Evolution of Language*, 3, 16-37.
- Pungello, E. P., Iruka, I. U., Dotterer, A. M., Mills-Koonce, R., & Reznick, J. S. (2009). The effects of socioeconomic status, race, and parenting on language development in early childhood. *Developmental Psychology*, 45(2), 544.
- Rafdal, B.H., McMaster, K.L., McConnell, S.R., Fuchs, D., & Fuchs, L.S. (2011). The effectiveness of kindergarten peer-assisted learning strategies for students with disabilities. *Council for Exceptional Children*, 77(3), 299-316.
- Rohrbeck, C.A., Ginsburg-Block, M.D., Fantuzzo, J.W., & Miller, T.R. (2003). Peer-assisted learning interventions with elementary school students: A meta-analytic review. *Journal of Educational Psychology*, 95(2), 240-257.

- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68.
- Sage, N.A. & Kindermann, T.A. (1999). Peer networks, behavior contingencies, and children's engagement in the classroom. *Merrill-Palmer Quarterly*, 45(1), 143-171.
- Salvia J., Ysseldyke, J., & Bolt, S. (2010). *Assessment: In Special and Inclusive Education* (Google eBooks). Belmont, CA: Wadsworth.
- Smith, L.B. & Thelen, E. (2003). Development as a dynamic system. *Trends in cognitive sciences*, 7(8), 343-348.
- State of New Jersey Department of Education. (2014). *New Jersey School Performance Report*. Retrieved from <http://www.state.nj.us/education/pr/1314/25/252770065.pdf>.
- Timler, G.R. & Vogler-Elias, D. (2007). Strategies for promoting generalization of social communication skills in preschoolers and school-aged children. *Topics in Language Disorders*, 27(2), 167-181.
- Topping, K.J. (2005). Trends in peer learning. *Educational Psychology*, 25(6), 631-645.
- Topping, K.J. & Ehly, S.W. (2001). Peer assisted learning: A framework for consultation. *Journal of Educational and Psychological Consultation*, 12(2), 113-132.
- Vygotsky, L. (1997). *Reading on the Development of Children*. M. Gauvain & M. Cole (Eds.). New York, NY: W.H. Freeman & Company.
- Weiss, S.L. (2013). Learning-related behaviors: Small group reading instruction in the general education classroom. *Intervention in School and Clinic*, 48(5), 294-302.
- Yifat, R. & Zadunaisky-Ehrlich (2008). Teachers' talk in preschools during circletime: The case of revoicing. *Journal of Research in Childhood Education*, 23(2), 211-226.

Zaghlawan, H.Y. & Ostrosky, M.M. (2011). Circle time: An exploratory study of activities and challenging behavior in head start classrooms. *Early Childhood Education Journal*, 38, 439-448.

## APPENDIX A

## IRB Approval Letters



July 1, 2014

Elisabeth Mlawski  
16 Elmwood Road  
Springfield, NJ 07081

Dear Ms. Mlawski,

The Seton Hall University Institutional Review Board has reviewed the information you have submitted addressing the concerns for your proposal entitled "Exploring Peer Learning in the Context of Dyadic Interactions in Kindergarten Aged Children". Your research protocol is hereby approved as revised through expedited review. The IRB reserves the right to recall the proposal at any time for full review.

Enclosed for your records are the signed Request for Approval form, the stamped original Consent Form and Assent Form. Make copies only of these stamped forms.

The Institutional Review Board approval of your research is valid for a one-year period from the date of this letter. During this time, any changes to the research protocol must be reviewed and approved by the IRB prior to their implementation.

According to federal regulations, continuing review of already approved research is mandated to take place at least 12 months after this initial approval. You will receive communication from the IRB Office for this several months before the anniversary date of your initial approval.

Thank you for your cooperation.

*In harmony with federal regulations, none of the investigators or research staff involved in the study took part in the final decision.*

Sincerely,

Mary F. Ruzicka, Ph.D.  
Professor  
Director, Institutional Review Board

cc: Dr. Terrence Cahill

**Office of Institutional Review Board**

Presidents Hall • 400 South Orange Avenue • South Orange, New Jersey 07079 • Tel: 973.313.6314 • Fax: 973.275.2361 • [www.shu.edu](http://www.shu.edu)

# APPROVAL NOTICE


**DATE:** May 29, 2014

**TO:** Elisabeth Mlawski  
Primary Investigator

**FROM:** Dr. Amy Handlin  
IRB Chair, Institutional Review Board

**RE:** Monmouth University IRB Code #: **SP1474**  
Approved by: Full Committee Review  
Approval Period: May 29, 2014— May 28, 2017  
Title of Project: *Exploring peer learning in the context of dyadic interactions in Kindergarten aged children*

**Please be notified that the Monmouth University Institutional Review Board (MU IRB) has approved the above referenced research project involving the use of human subjects in research. You may begin collecting data. Please read the attached notice regarding research studies. Best wishes for successful completion of your study.**

  
Approval Signature of the MU IRB Chair

  
Signature IRB/IACUC Coordinator



APPENDIX B  
Permission to Collect Data in School District



**OFFICE OF THE SUPERINTENDENT  
LONG BRANCH PUBLIC SCHOOLS  
540 Broadway, Long Branch, New Jersey 07740**

**MICHAEL SALVATORE**  
Superintendent of Schools  
(732) 571-2868, Ext 40010  
Fax: (732) 229-0797

**"Where Children Matter Most"**

Monmouth University  
Office of the IRB and IACUC  
400 Cedar Avenue  
West Long Branch, NJ, 07764  
Phone: 732-263-5726 • Fax: 732-263-5728

**Subject:** Letter of Acknowledgement of a Research Project at an outside site or school district

To Monmouth University IRB:

This letter will acknowledge that I have reviewed a request by Elisabeth A. Mlawski to conduct a research project entitled Exploring Peer Learning in the Context of Dyadic Interactions in Kindergarten Aged Children at the Amerigo A. Anastasia School, Long Branch, New Jersey.

When the research project has received approval from the MU Institutional Review Board and the Amerigo A. Anastasia School; and upon presentation of the approval letter to me by the approved researcher, as site administrator for the Amerigo A. Anastasia School, I agree to allow access to our facility for the approved research project.

If we have any concerns or need additional information, the project researcher will be contacted or we will contact the MU Office of the IRB/IACUC at 732-263-5726.

Sincerely,

Michael Salvatore  
Superintendent of School

06.12.14

Date

## APPENDIX C

### Letter of Solicitation

Dear Parent,

My name is Elisabeth Mlawski and I am a doctoral candidate at Seton Hall University, Department of Graduate Programs in Health Sciences completing my dissertation. I am conducting a research study with kindergarten age school children in which your child could help. The Amerigo A. Anastasia School has allowed me to contact you to request permission for your child to participate in the study.

Research studies are done to answer a question. The question that I am asking is how do children approach working with peers and how he/she reacts to one another on an activity when learning together. The reason I want to know more about children working with peers is because the Common Core Standards that are used in the State of New Jersey require children to work with other children for the purpose of learning.

The total time commitment for your child will be approximately 60 minutes while in school spread out over two days. The first step on the first day will take approximately 30-45 minutes to look at his/her English ability and vocabulary skills using the Peabody Picture Vocabulary Test, Fourth Edition (i.e., Point to the fork) and motor skills (i.e., throw a ball) using the Peabody Developmental Motor Scales (PDMS-2) to see if they meet the conditions to join the study. The second day will be 15 minutes for the learning activity beanbag game.

Participating in this study is completely voluntary. You may choose not to have your child take part. If you decide not to have your child take part in the study, your decision will have no effect on your child's education.

This research is anonymous. Anonymous means no information about your child that could identify them will be recorded. Your child will be assigned a number that will be used on all data instead of his/her name.

The primary researcher, and the dissertation committee at Seton Hall University are the only parties that will be allowed to see the data or the videos. If a report of this study is published, or the results are presented at a professional conference, data will be presented in a way to protect the anonymity of participants.

Thank you for your time.

Sincerely,

Elisabeth A. Mlawski, ABD, CCC-SLP

## APPENDIX D

### Informed Consent

#### *Parental Permission/Consent Form*

(date to be determined)

Dear Parents,

#### Researcher's Affiliation

I am a doctoral candidate at Seton Hall University, Department of Graduate Programs in Health Sciences completing my dissertation. I am conducting a research study with kindergarten age school children. The Amerigo A. Anastasia School has allowed me to contact you to request permission for your child to participate in the study. I will briefly explain the study to the children who have returned this permission slip, and also ask for their agreement to participate.

#### Purpose and Duration

The subject of my research project is exploring what children are doing and how are they reacting when interacting with peers in a learning task. Students will work with the primary researcher in a quiet area of his/her classroom within eyesight of his/her classroom teacher for approximately 30 minutes over two days. The first day will include screening for English proficiency and vocabulary using the Peabody Picture Vocabulary Test, Fourth Edition (i.e., Point to the \_\_\_\_ ) and the second day will be for the study.

#### Procedures

Children who participate in the study will be asked to play a game involving a beanbag toss. Two children will be involved at a time with one of them asked to assume the leader position and the other to pursue the follower position. During the 15 minute game the roles will be reversed halfway through the game. If the child indicates at any time that they want to stop participating in the study, he/she will be thanked for his/her participation, and will return to his/her classwork.

#### Voluntary Nature

Your child's participation in this study is completely voluntary. If you give consent, your child will be approached by the primary researcher in his/her classroom and told that his/her parent has given permission to talk with him/her. Then the prepared assent letter seeking his/her permission to participate will be read to him/her. After reading the entire assent letter to the child, the primary researcher will ask your child if he/she has any questions and will answer any questions he/she may have. Then your child will be asked if he/she wants to participate. If he/she says yes, the primary researcher will record that your child wants to participate. If he/she says no, the primary researcher will thank him/her for talking to them and bring him/her back to join the rest of his/her class.

#### Anonymity

This research is anonymous. Anonymous means that I will record no information about your child that could identify them. Your child will be assigned a number that will be used on all data instead of his/her name.

#### Confidentiality

All data collected will be stored securely in a locked site in order to maintain confidentiality. Peer sessions will be videotaped in order to assist in analysis of the peer interactions and the videos will be stored electronically and will be kept in a secure, locked site in the primary researchers home office. Your child will only be identified by a code

number on data that is collected. The primary researcher will be transcribing the videos for the purpose of analysis of the study data. After three years, all the data collected will be shredded and the videotapes will be erased.

Records

The primary researcher, and the dissertation committee at Seton Hall University are the only parties that will be allowed to see the data or the videos. If a report of this study is published, or the results are presented at a professional conference, data will be presented in a way to protect the anonymity of participants.

Risks or discomforts

The possible risks to your child for participating in this study could be boredom or fatigue. If at any point your child appears uncomfortable or does not want to continue, your child will be thanked for their participation and brought back to the rest of their class. Their grades will not be affected in any way if they do not participate in the study or if he/she decides to discontinue during the data collection. However, by his/her participation in the study, the data collected may lead to increased understanding of how children interact when he/she is working together in a learning task. If you would like to have a report of the study or discuss results when it is completed, please indicate this at the bottom of this form.

Contact Information

If you have any questions about the research, you may contact me (primary researcher) at 732-923-4616 or via e-mail at [Elisabeth.mlawski@student.shu.edu](mailto:Elisabeth.mlawski@student.shu.edu). The faculty advisor for this study is Dr. Terrence Cahill and he may be contacted at 973-275-2449 or via email at [Terrence.cahill@shu.edu](mailto:Terrence.cahill@shu.edu). If you have any questions about your child's rights as a research participant, you may contact the IRB Coordinator at Seton Hall University Institutional Review Board (IRB) by phone at (973) 313-6314 or via e-mail at [irb@shu.edu](mailto:irb@shu.edu).

Please sign and return the attached consent form and the assent form, as well as complete the demographic survey if you are providing permission to take part in the study and return them to your child's classroom teacher. You will be provided with a copy of this signed, dated consent form and the signed, dated assent form of your child. Your support is greatly appreciated.

Sincerely,

Elisabeth A. Mlawski

\*\*\*\*\*

\_\_\_\_\_ has my permission to participate in the research study,

Child's Name

"Exploring Peer Learning in the Context of Dyadic Interactions in Kindergarten Aged Children ", that will be conducted by Elisabeth A. Mlawski.

Signature of Parent or Guardian \_\_\_\_\_

Date \_\_\_\_\_

\_\_\_\_\_ has my permission to be videotaped during participation in the research

Child's Name

study "Exploring Peer Learning in the Context of Dyadic Interactions in Kindergarten Aged Children" that will be conducted by Elisabeth A. Mlawski.

Signature of Parent or Guardian \_\_\_\_\_ Date \_\_\_\_\_

## APPENDIX E

## Child Assent

*Assent to Participate in Research***Exploring What Kids Do When Working Together To Learn.**

1. My name is Elisabeth Mlawski.
2. I am asking you to take part in a research study because we are trying to learn more about what kids do when they work together to learn.
3. If you agree to be in this study you will be asked to play a beanbag toss game with another kindergarten child.
4. If you participate, you will have a chance to be the leader, go first for a while, and then you will the chance to go second, to follow the other child.
5. Your parents have given permission for you to participate in the study. You can still decide not to do this and say "no".
6. If you don't want to be in this study, you don't have to participate. Remember, being in this study is up to you and no one will be upset if you don't want to participate or even if you change your mind later and want to stop.
7. You can ask any questions that you have about the study. If you have a question later that you didn't think of now, you can call me 732-923-4616 or ask me next time.
8. If you want to be in the study, you give assent, that means you agree to be in this study, you and your parents will be given a copy of this form.

Would you like to be in the study? Yes \_\_\_\_\_ No \_\_\_\_\_

\_\_\_\_\_  
Child's Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Parent Signature

\_\_\_\_\_  
Date

## APPENDIX F

## Parent's Introductory Information

Exploring Peer Learning in the Context of Dyadic Interactions in Kindergarten Aged  
Children  
"Parent's Introductory Information"

Name of your child: \_\_\_\_\_

What is your child's gender?

female

male

What is your child's date of birth? \_\_\_\_\_

Does your child have any reported disabilities (i.e., speech, learning, physical)?

No

Yes

If yes, what is the disability?

Does your child take any medications (prescription or over the counter) on a daily basis?

No

Yes

If yes, what is the name of the medication? (i.e., Benadryl, Claritin, etc.)

Does your child understand English language?

No

Yes

Does your kindergarten child have siblings?

No

Yes

If yes, please identify gender and age:

1.

2.

## APPENDIX G

Hello Elisabeth - I am glad you found this useful. Yes, of course you have my permission to reproduce it. Good luck with writing up your dissertation. All best wishes, Keith Topping

Keith Topping  
Professor of Educational & Social Research  
University of Dundee  
Dundee DD1 4HN, Scotland, UK  
[www.dundee.ac.uk/eswce/people/kjtopping.htm](http://www.dundee.ac.uk/eswce/people/kjtopping.htm)

**From:** Mlawski, Elisabeth <[emlawski@monmouth.edu](mailto:emlawski@monmouth.edu)>

**Sent:** 23 April 2015 18:47:01

**To:** Keith Topping (Staff)

**Cc:** Mlawski, Elisabeth

**Subject:** Use of your PAL framework for dissertation

Hello Dr. Topping.

My name is Elisabeth Mlawski and I just defended my dissertation on "Exploring Peer Learning in the Context of Dyadic Interactions in Kindergarten Aged Children". I am in the process now of preparing my manuscript. I would like to use an image of the theoretical underpinnings of Peer Assisted Learning from your article Peer Assisted Learning: A Framework for Consultation (2001). I used your framework as I looked to see what the kindergarten children were doing based upon the subprocesses that you have delineated. For copyright purposes, I would need your express written permission to use the image of the figure. I found the figure to be very informative and am fascinated with how children learn to work with a peer. Peers are a valuable resource to aid in the learning process and most people assume that children know how to work with a peer without being taught how work collaboratively.