

Multiple Intelligences and how Children Learn:

An Investigation in one Preschool Classroom

by

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Chapter 1:

Introduction and Literature Review

Traditionally, educators and teachers have been concerned with assessing *what* children learn instead of focusing on *how* children learn. Focusing on how children learn gives the child a comprehensive approach to teaching and learning. By taking the time to investigate how children learn, we as educators are forced “to examine our values about people, learning and education” (Guila, 1997). Children are actively involved in their learning and they work closely with their peers and teachers to make decisions and solve problems. The purpose of this study was to gain understanding of how children learn when they are engaged in child initiated, teacher guided activities. Specifically, children’s learning processes were documented and interpreted based on how children used their multiple intelligences in the learning process.

For decades early in this century, research was based on the assumption that an infant’s mind was a blank slate and how new experiences shaped the child’s development (National Academy of Science, 2000). Challenges to this idea of tabula rasa led some psychologists to explore other perspectives and theories of development. For example, Piaget focused on a child’s cognitive and intellectual development while Elinor Gibson focused on a child’s perceptual development. Although these theories were different, they shared the view that children were “active learners who are able to set goals, plan and revise” (National Academy of Science, 2000). With new and improved methodologies, researchers found that children were active learners in their conceptual development. (National Academy of Science, 2000). The idea of children being active learners was also emphasized by Vygotsky. Vygotsky focused on the social context of

development and the role of the social environment as an important component in the development of the child. He felt social interactions are essential in the development of the child. More recently, there has been a growing interest in the multiple forms of intelligence, as proposed by Howard Gardner. Gardner's model of multiple intelligence has many implications for teaching and learning. The standard view of intelligence according to Gardner was that intelligence is something that an individual possesses at birth. The model of multiple intelligences challenges this view. According to Gardner, "an intelligence entails the ability to solve problems or fashion products that are of consequence in a particular cultural setting or community"(1993, p.15). Gardner suggested that although individuals have a biological proclivity to solving problems in a particular way, the cultural nurturance of the domain is equally important and plays a large role in a child's proclivity towards certain intelligences. This perspective supports Vygotsky's socio-cultural theory of learning.

The Zone of Proximal Development

Vygotsky's theory focused on children's development in social context. Vygotsky's conceptualization of learning in social situations was reflected through his well-known concept of the zone of proximal development. He defined the zone of proximal development to be "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers"(1978, p.86). In short, children come to an understanding of the world based on their collaborative interaction with others, especially peers. Vygotsky defined two developmental levels in the process of learning. The first level is called the actual

developmental level. Vygotsky defined this as “the level of development of a child’s mental functions that has been established as a result of certain already completed developmental cycles”(1978, p.85). The actual development is what the child already knows based on previous learning and experiences. The second level of in the process of learning is potential development. In social situations, children can be involved in more advanced problem solving than they are able to handle by themselves. Working with a child or adult who is more competent in an area helps the child to advance in skills that they once did not possess (Tudge and Rogoff, 1989). Children present increased levels of learning and development through the zone of proximal development. This is existent in several aspects of children’s interactions. Through scaffolding, there are many ways this learning in the zone can take place. The notion of scaffolding was originated by Bruner but now other researchers have conceptualized scaffolding into their research and practice. Tharp and Gallimore (1988) defined scaffolding as not simplifying the task but simplifying the role of the child in the task through assistance of an expert or adult. Some examples of scaffolding include shaping and modeling. Shaping involves the adult or expert breaking down the task into a series of steps or goals therefore simplifying the task for the child (Tharp and Gallimore, 1988). Children also model and imitate each other’s behavior. As children are modeling each other, they are guiding each other even closer to accomplishing a specific goal. While the children are interacting with one another, they are moving each other towards a higher level of understanding and one step closer towards mastering the skill (Tharp and Gallimore, 1988). Through the process of scaffolding, the child at first is able to accomplish the task with assistance and after this, the child is able to perform the task independently. By collaborating with peers of

different cognitive skills, children will be able to maximize their cognitive strengths while being introduced to new skills. Gardner believes that teachers tend to teach children according to the way that they learn best. I believe this can be applied to children also. By working together, children will have the chance to gain more skills and learn new ways of understanding our world.

Intersubjectivity

An important concept of learning in the zone of proximity is intersubjectivity; “shared understanding, based on common focus of attention and common goal, between a child and a more competent person”(Miller, 1983, p.382). Intersubjectivity may occur between two children when they understand the process and goal they are working towards together. All children involved must have a focus of attention on the activity (Goucu, 1993). When there is this focus of attention, the children will be able to expand on their existing knowledge and apply it to new situations or activities (Goucu, 1993). Children not only learn from past experiences but from each other also. The skills that children have learned from their more competent peers differ both within and across societies (Tudge and Rogoff, 1989). When intersubjectivity occurs between a child and an adult, learning is reciprocal, the child can affect the adult’s behavior just as the adult’s behavior can affect the child’s.

The Process of Internalization

Another key aspect of Vygotsky’s theory was his emphasis on the process of internalization. Vygotsky states that the process of internalization begins when “an operation that initially represents an external activity is reconstructed and begins to occur internally”(1978, p.56-57). According to Goldhaber (2000), “every function in the

child's development occurs twice-first on the social level (the intermental) and then on the psychological level (the intramental)" (p.342). When a child is learning something for the first time, it is in the social level. With continued experiences, the child will begin to understand the culturally mediated social meaning of the action. A child's process of internalization "is the result of a long series of developmental events"(Vygotsky, 1978, p.57). This can affect the way that children learn. One of the ways of looking at the factors that may influence children's learning can be seen in Howard Gardner's model of multiple intelligences.

Vygotsky's theory and Gardner's model complement each other. Gardner believes that children often possess a biological proclivity towards learning and problem solving in particular ways. Gardner also emphasizes the importance of the culture and environment and how they nurture a child's predisposed way of learning. This aspect of Gardner's model fits in with Vygotsky's belief that the child develops in social context or the environment in which they live. Vygotsky proposed that children's learning is based on their relationships with other peers, parents and teachers. A child's biological proclivity towards problem solving in a particular way is often nurtured in the context, culture or environment they are in. If teachers and educators would foster this predisposition to learning, perhaps children would be able to learn in the way they know and understand best.

Howard Gardner's Multiple Intelligences

For learning to occur, focusing on the strengths and skills of the child gives the child motivation and opportunity to learn in the ways that the child learns best. Howard Gardner looks at learning through his model of multiple intelligences. Gardner takes a

pluralistic view of learning by recognizing that everyone has different cognitive strengths (1993). Children's different strengths may influence how children make sense of the world. There are several key points in the Multiple Intelligences theory that are worth mentioning. First, every individual possesses all eight intelligences. Some individuals possess higher levels of certain intelligences than others do but most importantly, most of us are highly intelligent in some, modestly intelligent in some and underdeveloped in the rest (Armstrong, 1994). Second, most people can develop each intelligence to a certain level of competency. Everyone has the capacity to learn or become better in a certain intelligence by instruction and encouragement (Armstrong, 1994). Third, intelligences usually work together in complex ways. They are always interacting with one another (Armstrong, 1994). Fourth, there are many ways to be intelligent within each category. There is a great diversity of ways in which individuals can show us their intelligence within each intelligence (Armstrong, 1994). Gardner has come up with seven distinct intelligences and in 1999 added an eighth intelligence. Figure 1 briefly describes each of Gardner's Multiple Intelligences.

Figure 1: Gardner's Multiple Intelligences

From Multiple Intelligences Go to School: Educational Implications of the Theory of Multiple Intelligences by Howard Gardner and Thomas Hatch

Intelligence	Core Components
Logical-mathematical	Sensitivity to, and capacity to discern, logical or numerical patterns; ability to handle long chains of reasoning
Linguistic	Sensitivity to the sounds, rhythms and meanings of words; sensitivity to the different functions of language
Musical	Abilities to produce and appreciate rhythm, pitch and timbre; appreciation of the forms of musical expressiveness.
Spatial	Capacities to perceive the visual-spatial world accurately and to perform transformations on one's initial perceptions
Bodily-Kinesthetic	Abilities to control one's body movements and to handle objects skillfully.
Interpersonal	Capacities to discern and respond appropriately to the moods, temperaments, motivations, and desires of other people
Intrapersonal	Access to one's own feelings and the ability to discriminate among them and draw upon them to guide behavior; knowledge of one's own strengths, weaknesses, desires and intelligences.
Naturalist (from an interview with Gardner by Checkly, 1997).	Ability to discriminate among living things (plants, animals) as well as sensitivity to other features of the natural world (clouds, rock configurations).

On a more practical level, Gardner was concerned with the exclusive ways that children were being taught in school. There has been an emphasis on teaching children in predominantly two forms, two intelligences, linguistic symbolization and logical-mathematical symbolization (Gardner & Hatch, 1989). The emphases of linguistic and logical-mathematical ways of learning are highly focused on intelligence, aptitude and

achievement tests that children must take. Gardner (1993) sees this as a one-dimensional view where there is a core curriculum and one set of facts that every child should know. Gardner's model however promotes personalization and individualization of a child's learning in the classroom. Silver, Strong & Perini (1997) assert that "the whole child is educated"(p.31). Where Gardner's model focuses on the individualization of the child, Vygotsky focuses on the theory that children learn in social relationships. Both theories help to give theoretical background for how children learn through their multiple intelligences alone and in group experiences.

The Role of the Teacher

Howard Gardner's model of multiple intelligences has many implications for education. Using multiple intelligences as a model of practice has the possibility to accommodate all students' ways of learning and diversify their experience. In order for this to occur, the role of the teacher is important from the beginning of the process to the end. Teachers are central to the establishment of a classroom culture. Social interaction is the core of teaching and learning where relationships are very important. Stremmel and Fu (1993) refer to the "teaching-learning context" where "a child and adult collaborate in negotiating and constructing a desired learning activity through conversational interactions" (p. 339). Basically, teaching and learning work hand in hand within a social context. This can be called teaching in the zone of proximal development. There is collaboration between teachers and children to construct knowledge based on the child's interests and the teacher's initiation. Teachers must observe and listen to their children closely. Observation also involves listening and "constructing, interpreting and revisiting it" (Rinaldi, 1998, p.120).

Profiling

As teachers are observing and listening to children closely, they have the opportunity to document and describe children's profiles of strengths and how they learn best (Gardner, 1991). Profiles of each child can be used as a resource that shows the child's predominant multiple intelligences and also shows the child's lesser used intelligences. Children possess several propensities for learning and through keen observations, teachers and educators should be able to recognize that children use certain intelligences to problem solve. The intelligence that they child may use has the possibility to change as the problem solving activity changes. According to Gardner (1991), these profiles may offer "specific recommendations about what might be done at home, in school, or in the wider community to build on strengths as well as to bolster areas of relative weakness"(p.207). These profiles will help future teachers and educators promote individualization of each child's learning in the classroom. Children will be able to use their predominant multiple intelligences and nurture their lesser used intelligences.

"The Cycle of Inquiry"

One of the major roles of the teachers is to ask children questions and discover the children's construction of theories and meanings (Hendrick, 1997) in the learning process. Gandini and Goldhaber, (2001) describe the learning process as a "cycle of inquiry." The cycle of inquiry begins with *framing the questions*. These questions come from interests that the children and teachers have in the classroom. It is very important that the teacher ask questions. Next is *observing, recording and collecting artifacts*. Collecting data can happen in various ways as stated before. *Organizing observations and artifacts* is important when it comes to analyzing the data. Qualitative research

usually entails a lot of data and data sources so organization is important. One of the most important parts of the cycle of inquiry is *analyzing observations and artifacts and building theories*. Thinking about the meaning of the children's experience and how children use their multiple intelligences has led me to build theory and hypotheses based on the children's behavior (Gandini & Goldhaber, 2001). Through this cycle of inquiry and what I observed, the possibility of *reframing the questions* came up. Some of these questions may be more specific and help guide the teachers and researchers in a clearer direction. The last phase in the cycle is *planning, projecting and responding*. Based on the analysis, teachers plan, respond and further provoke the children based on the emerging interests of the previous questions. Fu (2002) suggests that "teaching happens in relationships- a pedagogy of relationships that encourage teachers to be imaginative and tuned into their students diverse needs and ways of knowing by using multiple tools (languages) to promote different ways of seeing, understanding, representing and demonstrating one's knowledge"(p.30). The teacher's role is to be in continuous communication with the children and to provide them with opportunities and experiences to learn based on the interests of the children. It is my responsibility to provide a variety of ways of teaching a particular topic since children have a variety of ways of learning (Haggerty, 1995).

Purpose of the Study:

The purpose of this study was to gain understanding of how children learn when they are engaged in child initiated, teacher guided activities. Specifically, children's learning processes were documented and interpreted based on how they use their multiple intelligences. At this stage in the research, multiple intelligences refers to Gardner's

model of multiple intelligence and his view of how children have many cognitive strengths. Ethnographic methodologies were used to observe, document and interpret children's behaviors and interactions in the classroom.

Justification and Rationale for Study:

This study attempts to help teachers and researchers gain a better understanding of how children learn. The teacher as researcher perspective gives me the opportunity to observe, reflect and interpret the children's behaviors first hand. I was able to generate new knowledge by collecting data on the children everyday. The children already know and trust me so their actions and interactions were natural and my presence was normal for the children. By providing children with learning opportunities that afford multiple ways of learning, children were able to grasp and understand a topic in the way that they know best and/or from different perspectives. In an interview with Gardner, Checkly, (1997) refers to Gardner's definition of understanding. When Gardner talks about understanding, he is referring to children "taking ideas they learn in school and apply[ing] those appropriately in new situations" (Checkly, 1997). We know that children truly understand something when they can represent their knowledge in more than one way (Checkly, 1997 in an interview with Gardner). The work done in this study may contribute to the way teachers facilitate learning in their classrooms and help to advance teacher appreciation of children's multiple intelligences. By recognizing that children have multiple ways of learning and by providing children with different media and activities, children will symbolize their representations based on their multiple intelligences. Teachers can help children discover multiple ways to symbolize and represent their knowing (Moran, 1998). In order for teachers to benefit from observing

children learning in different ways from different media and from other peers, teachers need to facilitate an environment for the children to do so. In order to facilitate peer interaction and peer collaboration among the children, the teacher must learn to be an intimate observer, interpreter and facilitator for these learning experiences. This research may also contribute to the application of Howard Gardner's model in a preschool classroom. Through the literature review, I was only able to find little research done on Gardner's model being applied in a preschool classroom.

Research Questions:

Although I realize that other questions have emerged through this study, initially this study was guided by the following question:

- How do young children learn through the use of their multiple intelligences during child initiated, teacher guided activities?

It can be assumed that:

- Teachers and researchers can identify a child's intelligence profiles according to their propensity for learning and problem solving in particular ways.
- Children do possess different intelligences and have different ways of learning.
- Children with similar intelligence(s) might approach learning situations in varied ways.

Chapter 2:

Methodology

The purpose of this study was to gain understanding of how children learn when they are engaged in child initiated, teacher guided activities. In this study, I observed, documented and interpreted the children's learning processes when they were working alone and in groups in the context of a preschool classroom. Specifically, children's learning processes were documented and interpreted based on how children used their multiple intelligences. Ethnographic methodologies were used to observe, document and interpret children's behaviors and interactions in the classroom. My decision to use qualitative research and specifically ethnography methods comes from the nature of the study. According to Goodwin and Goodwin (1996), qualitative research is a naturalistic concept where "multiple realities exist and must be recognized by giving attention to group and individual constructions and perceptions of reality"(p.19). This kind of research is quite inductive and the focus is on the process, the interpretation and meaning making of the process. Qualitative researchers benefit from using open-ended methods for performing research such as observations, interviews, and field notes. I used the cycle of inquiry (Gandini & Goldhaber, 2001) in conducting this study and to organize, analyze, and interpret the data. This cycle of inquiry helped me gain a better understanding of children's learning processes and the teaching-learning dynamics.

Ethnographers tend to focus on the close interactions of members of a particular cultural group (Rossman & Rallis, 1998). Ethnographers are often interested in how interactions in a certain setting shape meaning. In order to gain an understanding of how children learn, I, as the researcher was able to get close to the children being studied in

order to observe, document and interpret their behaviors and interactions with peers, teachers and parents in the environment.

Setting

The study took place in one of the classrooms at the Virginia Tech Child Development Lab School, which is a university-based preschool open to the community surrounding the campus. The Virginia Tech Child Development Lab School Handbook (2000) states that the philosophy of the lab school is grounded in social constructivist theory. This is a view that knowledge and understanding are constructed through social relationships. In the classroom, teachers and children negotiate the curriculum together. The teachers and student assistants at the lab school give children opportunities to make choices and explore their world through play. Children are also encouraged to interact with peers, investigate the unknown and come up with new questions based on play. The main role of the teacher is to guide the children in the activities while the main role of the children is to express ideas through interactions with peers, teachers, parents and the environment. The lab school embraces the parent-child relationship, as no one knows the child better than the parents. Teachers at the lab school maintain close contact between home and school.

Documentation is a useful tool for guiding emerging curriculum in the classroom and for showing the child's growth and development during their time in the lab school. Portfolios give the parents, children and teachers the opportunity to revisit experiences and explorations that the child has had in the classroom. The philosophy of the lab school is reflected in the school's notion of teacher as researcher (personal communication, Stremmel, 2001):

“In this center [practicum] students engage in the ongoing and reflexive process of connecting what they do with children to the way they are guided and supported in their own developmental journeys... Through collaborative and reflective inquiry, particularly interpretative ethnography and action research, students develop skills and understanding as active initiators of research in their own classrooms and as creators of curriculum and knowledge of young children. The careful observation and documentation of children’s daily activities in the classroom makes visible traces of their experience and learning, and it represents a public sharing and testing of ideas that are essential for creating a discipline of teaching.”

The specific preschool class that the research was conducted in is the Maroon Room AM classroom. The children participate in 1 hour and 45 minutes of inside self-selected play a day. Typically, the teacher sets up three activities for this period of the day but the children are free to explore other areas of the classroom including the kitchen area, the computer station and the studio. The studio is an important place for small group work. It is a small room with a variety of materials for investigation, construction and representation. There is also 45 minutes of outside play and two (15 minute) group times where the class sits as a circle to sing, read books, and explore ideas. For the purpose of this study, the children and teachers were observed during the 1 hour and 45 minutes of self-selected play period in the classroom and the studio.

One head teacher (myself) and anywhere from 2-7 student assistants were in the preschool classroom throughout the morning. I am a second year Master’s student in Child Development and I am the head teacher in this classroom four mornings a week.

Additionally, there is a “floating teacher” who will spend time with the children three mornings a week. He is the head teacher for the Maroon Room AM once a week.

Participants

The participants in this study were the 15 children enrolled in the Maroon AM classroom at the Virginia Tech Child Development Laboratory School. The children’s ages range from 40 months to 60 months. Of the 15 children, 10 speak only English and five are bilingual. The other languages represented in the classroom include Hindi, Spanish, Chinese and Persian. Participants in this study were also myself as the head teacher and the primary participant observer. The floating teacher and 14 student assistants participated in the research by contributing to observing and recording behaviors in the classroom. Specifically, seven children in the group were focused on and targeted for the study. The remaining eight children were also participants because of their close interactions with these children.

Children Targeted for Study:

As mentioned above, seven children were chosen to be focused on for this study. The seven children I have chosen in consultation with my research advisory members were in my Toddler classroom for the 2000-2001 school year. This is my fourth semester teaching these children. The Virginia Tech Lab School embraces the importance of having the head teachers stay with their children for the two years the head teacher’s work in the lab school. The concept of “looping” with the children for two years has allowed me to not only build relationships with the children but also with the parents and families. Over the course of the last four semesters, I have formed intimate relationships

with each of these children and have had ample opportunity to observe, interact and communicate with them over this time.

Because of the length of time I have known these children, I have an immense amount of data already collected on the children as a function of the teaching-learning experiences of the Early Childhood Education students at the lab school. Thus, besides my own knowledge of my interactions with the children, reflections from the student assistants from Fall 2000 through Spring 2001 were also available. Another valuable source of data is the children's portfolios. The child portfolios contain pictures, stories and interpretations of the child's interests, growth and development over the three semesters. These different sources of documentation from last year and this year helped to facilitate the initial assessment and "profiling" of the children's multiple intelligences – intelligence profiles.

Identification of Target Children's Multiple Intelligences:

The three faculty members on my thesis advisory committee and myself served as a panel of experts and together constructed the target children's intelligence profiles. This was done as a method of "profiling" since there was no existing method of intelligence profiling for young children. We reviewed all of the documentation on the children starting from Fall 2000 through Fall 2001. Through constructive conversations we came to an agreement on the children's intelligence profiles based on our understanding of multiple intelligences and child growth and development. The child's intelligence profile focused on the child's tendency to explore and learn best in learning experiences. Specifically the children's strengths in terms of all multiple intelligences were assessed in this process. After the children's intelligence profiles were determined,

I further observed and documented how these children learn. The data collected was analyzed and interpreted to gain understanding of how these children use their multiple intelligences during child initiated, teacher guided activities. The data also helped to demonstrate whether children's multiple intelligences change or stay the same over time as well as whether variations on how children with similar profiles may use their intelligences in learning experiences.

Confidentiality

The names of the children, families and teachers were kept confidential. Any information obtained during data collection or reported in this report used pseudonyms rather than the names of specific participants. Only the researcher and the committee members have access to the actual original data or information. The information is being stored in a locked cabinet under the researcher's supervision. All tapes of the classroom conversations and videotapes of children's play will be destroyed three years after the study. Parents of the participants were asked to fill out an informed consent form giving me permission to examine how children learn during child initiated, teacher guided activities. Please refer to Appendix A for the informed consent for participants in this study.

Data Gathering Procedures

Participant Observation

Since ethnography entitles one to understand individuals in particular contexts and settings, the best way to do this was through participant observation. Participant observers are involved first hand in the environment that the study is taking place.

Marshall & Rossman (1989) believe that “immersion in the setting allows the researcher to hear, see, and begin to experience reality as the participants do”(p.79). As the researcher, I spent a considerable amount of time observing and collecting field notes based on my placement in the setting. I was able to observe the children in several situations working with several different kinds of materials. By observing and looking back through Gardner’s model of multiple intelligence, I was able to make intelligence profiles for the children. The three faculty members on my thesis advisory committee and myself served as a panel of experts and together constructed the target children’s intelligence profiles. This was done as a method of “profiling” since there is no existing method of intelligence profiling for young children. We reviewed all of the documentation on the children starting from Fall 2000 through Fall 2001. Through constructive conversations we came to an agreement on the children’s intelligence profiles based on our understanding of multiple intelligences and child growth and development. Once the intelligence profiles were identified, I was able to help enhance learning opportunities for the children. The intelligence profiles gave teachers such as the assistants and myself a lot of insight into how the children learn using their multiple intelligences.

Student’s and my own observations, reflections and interpretations were used as documentation techniques to help the research team and myself develop intelligence profiles for the children. Observation has already played an integral role in the data collecting process for this research study and continued to during the remainder of the study. Observation runs across a continuum to where the researchers are mostly observing or mostly participating. According to Goodwin & Goodwin (1996), “the

researcher in the complete observer-role has the advantages of detachment, considerable objectivity, and little personal risk”(p.132). The researcher is not in the way of the children interacting and in no way inhibits, prevents or encourages the children to act in a way that they may not normally. Conversely, disadvantages of complete-observer role include no interactions with the participants and potential misunderstanding of what is being observed (Goodwin & Goodwin, 1996). Because of the disadvantages of the complete observer role, I chose to use participate observation as one of the methods of data collection. There are other methods that will be discussed such as interactions with children, audio and videotaping and journal writing.

I also chose to be a participant observer because of the role that I play in the classroom. I am the head teacher in the Maroon AM classroom for the children. I spend four days a week from 8:30-12:00 with the kids and have built relationships with all of them. I feel like I have already begun to understand the children and the way that they think and learn prior to the data collection so this period quite beneficial to me as I have documented and interpreted my observations. Because of the interactions and relationships I have with the children, this lessens the amount of misunderstandings that might have occurred than if I did not know the children. Due to the role I have as head teacher and as participant observer, I had the ability to gain rich insights into how children learn and use their multiple intelligences alone and in small groups.

Interactions and Conversations with the Children

Since the children and I have already built relationships over the past few months and for seven of the children, the last year, interactions and conversations were naturally

occurring between the children and myself as a function of my role as “teacher-researcher.” I had the opportunity to ask provoking and challenging questions to the children to extend their knowledge and I had the opportunity to ask them questions about their play if I ever had any questions. Recording of children’s dialogue is important and helped me understand the process in which children are constructing new meaning and knowledge and their dialogue and conversations with me helped me see how they learn so that I can continue to offer these learning possibilities to them.

Audio and Video Taping

I used a video camera to videotape the children alone or in groups engaging in a variety of experiences alone or in groups. This helped me view the process of the children’s thinking and look back through the tapes to transcribe exactly what the children say. I was also able to consistently see the children using their multiple intelligences to make sense of the activities they are working on. I videotaped the children from January 22, 2002-February 22, 2002. This allowed for five weeks of observation through videotaping at three days a week. I videotaped for a total of fifteen days. The timing each morning varied depending on what was going on in the classroom and how much I was needed. The use of videotaping gave me the chance to interpret and reinterpret data after more observations. Prior to researching and videotaping the children, an informed consent was given to all the parents of the children. The informed consent that was given to the parents can be found in Appendix A.

Reflexive Journal

I kept a journal that included my thoughts and reflections as the head teacher and primary participant observer. This journal was also used to provide a record of how I changed and emerged as the teacher in the classroom and the research process as informed by the cycle of inquiry. As I begin to learn and understand more about the children's cognitive strengths, I will have to evaluate the way I choose activities in the classroom. I may have to reevaluate some of the decisions that I make as a teacher to accommodate the children's interests and ways of learning.

Analysis

The detailed field notes and observations taken each day were read at the end of each day. Reflections from the student assistants were also used to supplement my field notes and observations. The videotaping was transcribed at the end of each day so that I could focus on and look for emerging themes during the children's self-selected play. The observations, videotapes and reflexive journal helped me understand how children learn using their multiple intelligences. I was able to see children engaging in a variety of experiences alone or in-groups. By gathering data for five weeks, I had an adequate amount of information and data to help me gain more knowledge about how children learn.

Trustworthiness

Since this is a qualitative study, trustworthiness became important to show that the results and discoveries of this study are sound. Trustworthiness helps to establish

truth in the findings. The four strategies of establishing trustworthiness are credibility, transferability, dependability and confirmability. By using multiple data sources such as participant observation, video and audiotaping and a reflexive journal, I was able to meet the criteria of establishing trustworthiness. Triangulation of methods helped to neutralize biases in the data especially when all different sources are showing the same results (Creswell, 1994). My research team (advisory committee), fellow teachers and student assistants contributed when appropriate to my interpretation, understanding and conclusions of the discoveries that were made. This study will help inform other teachers about teaching and learning in a preschool classroom.

Personal Narrative

Growing up, I knew that I always wanted to work with children. Throughout high school and college, I was an officer of several service organizations that worked with children so even though I knew that I did not want to teach in the schools, I still knew in my heart that I wanted to work with kids. After changing my major several times in college, I decided on a BA in Psychology because the classes interested me but even then I still did not know what I wanted to do. I did some research and came across the field of Child Life. Child life professionals typically work in hospital or health care settings with children and help children prepare for medical procedures or experiences through play opportunities and medical teaching. This was very interesting to me and I immediately began to volunteer at a children's hospital. I enjoyed working with the children in the hospital and immediately saw how children often have very little control over their environment in the hospital and how the role of play becomes important. Play is often the only thing that children do have control over when they are in the hospital. Through

this experience, I realized that I did not have enough knowledge in the area of child growth and development to be able to really help these children. That led me to my decision to pursue a Master's degree in Child Development and that is what brought me to Virginia Tech.

I have had a wonderful opportunity at the Child Development Lab School to work with the toddlers last year and preschoolers this year. I have learned many fundamentals and theories of child growth and development throughout this experience and my classes. Through a lot of my experiences and observations of children at the lab school, I have become curious about the way the children learn. Studying learning by focusing on the strengths of the child gives the child several opportunities to learn the way that they learn best. Howard Gardner looks at learning through his model of multiple intelligences. Gardner takes a pluralistic view of learning by recognizing that everyone has different cognitive strengths (1993). At the lab school, we offer the children multiple experiences and ways of symbolizing their knowledge. As a teacher I have often contemplated what my role is in facilitating positive learning experiences for the children. The role of the teacher becomes important when trying to facilitate activities for children that will help them learn. Teachers are central to the establishment of a classroom culture. Social interaction is the core of teaching and learning where relationships are very important. Stremmel and Fu (1993) refer to the "teaching-learning context" where "a child and adult collaborate in negotiating and constructing a desired learning activity through conversational interactions" (p. 339). I have come to realize that learning is based on context and social relationships. Gardner recognizes that children learn differently and he has been an advocate for teachers and educators to realize that children need to be

taught in the way that they know best. One of the goals that I have for my children in the preschool classroom is to recognize the different strengths that the kids have and to provide multiple opportunities for the kids to learn in the way that they know best. Also by facilitating peer interaction in the classroom, children will learn from one another and teach each other their talents and strengths. I am interested to see more activities in the classroom that utilizes the several strengths that children have. I am interested to see how children learn through the use of their multiple intelligences during child initiated, teacher guided activities.

This research interest of mine in the classroom can be applied to my interest in pursuing a career in Child Life. This past summer I completed a 480-hour internship in Child Life at a hospital in Charlotte. A lot of my interactions with the children and medical teaching were applied from my knowledge of child growth and development and from the teaching experience with the toddlers. All of these experiences and opportunities that I have at the lab school are the basis and foundations of my work with the children in the hospital. Without knowing how children grow and develop, I would not be able to developmentally help the children in the hospital. I look forward to my continued research with the preschoolers and strongly feel like it will help me help the children who are in hospital.

Chapter 3:

Discoveries

My intention for this study was to gain an understanding of how children learn when they are engaged in child initiated, teacher guided activities. Specifically, children's learning processes were documented and interpreted based on how they use their multiple intelligences. Before the videotaping began, my advisory committee members and myself met to discuss and come to agreement on the target children's intelligence profiles.

Identification of Target Children's Multiple Intelligences:

The three faculty members on my thesis advisory committee and I served as a panel of experts and together constructed the target children's intelligence profiles. This was done as a method of "profiling" since there was no existing method of intelligence profiling for young children. We reviewed all of the documentation on the children starting from Fall 2000 through Fall 2001. Through constructive conversations we came to an agreement on the children's intelligence profiles based on our understanding of multiple intelligences and child growth and development. The child's intelligence profile focused on the child's tendency to explore and learn best in learning experiences. Specifically, the children's strengths in terms of all multiple intelligences were assessed in this process. The procedure for how my advisory committee and I identified target children's multiple intelligences and the data that we used are described in chapter two. There were several assumptions that we kept in mind as we went through this profiling process. At this stage in their lives, the children are still developing and they seem to have more of an integrative way of learning. The consistent pattern of learning for these

preschool children is not as clearly defined as it may have been for older children and adults. These preschool children seem to be more flexible and will often switch from one mode of learning to another depending on the situation. Because of these assumptions, we discussed several intelligences that best described how each child learns during different learning experiences. We understand that children may use different intelligences during different problem solving situations. We collectively came up with the seven target children's "working profiles" after constructive conversation and dialogue. The "working profiles" for the children are described below.

Sophie

The working profile on Sophie was that she tended to learn through musical and spatial intelligences. Sophie enjoys playing with, and watches out for and cares for other children. For example, Sophie was painting on the computer and Adam wanted a turn. When Sophie was done painting she went and found Adam to tell him that it was his turn. While Adam was painting, Austin wanted a turn. When Adam was done, Sophie found Austin to let Austin know that it was now his turn. Sophie more often than not glides or skips as she moves. She thoroughly enjoys singing songs and can be caught humming or singing while working. Sophie has a beautiful high-pitched voice which can be heard through her shrills and squeals of excitement. Sophie also enjoys any art activity that is available. Like her movement, Sophie does a dance around all the activities in the classroom and usually will explore every art activity. She is not afraid to get her hands into the activity literally!

Chrissy

The working profile on Chrissy revealed that she tended to learn through linguistic, interpersonal, and intrapersonal intelligences. Chrissy has a love of books and reading. Reading books is one of the ways that Chrissy sometimes transitions into the classroom. She has an extensive vocabulary and is very detailed in her descriptions when she is telling or retelling stories. Once when Chrissy was reading a book about animals she would act out the sounds of the animals in the book. Chrissy also takes reading books as an opportunity to socialize with her peers. She enjoys teaching others and if one of the other children got an animal wrong, Chrissy would correct them and tell them the correct animal's name. She enjoys participating as several different characters through her dramatic play experiences. Some examples are dinosaurs, kitty cats and different roles during playing house. Chrissy is the only target child according to our interpretation that possessed both interpersonal and intrapersonal intelligences. She works well alone and is in touch with her feelings. Using her linguistic skills, Chrissy can tell her teachers how she is feeling and can differentiate between her emotions well. When Chrissy wants to be alone, she will tell us and when she wants or needs someone to be with her, she will let us know.

Sally

The working profile on Sally was similar to that of her sister, Chrissy. Sally tends to learn through linguistic and interpersonal intelligences. Sally like Chrissy loves being read to, but the difference is that Sally is very particular in selecting the books that she wants read to her. She likes to pick out certain books. Sally has an active imagination. She tells elaborate stories like the time she told me that she once went to the circus where

the lion bit her arm off after she had fallen down. Even though Sally's stories are made up, she tells them in a way that makes them believable. She puts the events in the right chronological order and she uses pronouns correctly so that the listener can follow her story clearly. Relationships and friendships are very important to Sally. She defines herself based on the activities that she participates with others. Almost everyday in group time when I ask her what she did in school that day, she almost always says, "I played with Kelli and my sister." Every afternoon when I ask her what she wants to do the next day she says, "I want to play with Kelli and Chrissy." Sally is more of a leader than a follower and also participates in dramatic play scenarios like her sister.

Kelli

Kelli's working profile suggests that based on our interpretation, Kelli learns through linguistic, spatial and interpersonal intelligences. Kelli exhibits an extensive vocabulary and uses that tool to explain and teach others about all that she knows. Kelli can create images in her head and then be able to describe them to others. She has an immense knowledge and vocabulary about dinosaurs, trucks, letters and movies. She has a keen memory and can recall her experiences and connect something that she is currently working on to something she has seen or heard in a movie. Kelli skillfully extends exploration by connecting her current play to previous experiences for example, things that she has seen in movies. Kelli has the ability to perceive the world accurately. The following is a excerpt from a student assistant observing Kelli:

"She could look at a picture of a truck that clearly showed the ladder up to the cab and look at the same picture from a different angle where the ladder was hidden on the other side and told me where the ladder was on the truck that it was

not visible on. She was able to accurately perceive the visual image by transforming her initial perception of the truck with that ladder to the truck turned so the ladder was not visible.”

Kelli’s interpersonal intelligence is shown through her ability to seek out company. I rarely see Kelli participating in activities by herself. If her close friends are not in the room, Kelli will proceed to approach other children in the classroom. She enjoys being the leader of the group and an active team member.

Brett

Brett’s profile shows that he learns best through the use of logical-mathematical, bodily kinesthetic and interpersonal intelligences. Brett is adept at finding patterns in things. He enjoys sorting and counting all kinds of materials from marbles to trains. He asks a lot of questions in order to figure out how things work. When he gets an idea in his head, he sticks with it until his thought is followed through. Brett’s bodily kinesthetic intelligence is shown through his dramatic body language. He runs (not walks) from center to center, uses gestures with hands and feet and announces himself with body movement when he enters a room or when he is excited. Brett is very vocal and is able to use this through his interpersonal intelligence. He understands people and understands why people act in certain ways. He shows concern for others and is able to vocalize for others when they can not. For example, another child took Ryan’s truck and Ryan cannot speak a lot of English so after Brett observed this interaction, he told a teacher so that someone could help Ryan get his truck back. He seeks out other children to play with and when others do not want to play with him his feelings are hurt and he always tells a teacher because he likes to be surrounded by his peers.

Austin

Austin's working profile revealed that he learns through linguistic and intrapersonal intelligences. Austin uses the computer as a language. He is very knowledgeable about computers and has an extensive vocabulary and interest in computers. Austin uses complete sentences and enjoys being read to. Austin's intrapersonal intelligence is shown through several examples. He works alone well and often enjoys being alone to observe, think and learn. Austin likes the quiet places in the classroom such as the loft and the chair to the right when you walk into the classroom. He learns through his observations of others. Although Austin may be on the outskirts of the group, he is in tune with what is going on with his friends. Austin is in touch with his feelings and often tells his teachers how he feels. I have heard Austin tell me "I need to rest because I am tired." He uses his linguistic abilities to relate his feelings to others.

Lilly

Lilly's working profile shows that she possesses logical-mathematical, spatial and intrapersonal intelligences. Lilly has been observed on several occasions categorizing different mediums such as dinosaurs and insects. She lined up all the dinosaurs (13 of them) from the smallest to the largest. She can discriminate well between objects that are similar or different. Lilly's spatial abilities can be seen through her keen ability to perceive the world accurately. She can see when someone is upset or needs a friend or playmate. She also enjoys the art activities. She likes to make three-dimensional figures from clay; she doodles, paints and draws. When we were making signs for the bake sale for the lab school, Lilly made an accurate drawing of a cookie with chocolate chips for the bake sale. Lilly plays well alone and is able to control her feelings and moods. She is

in touch with her inner feelings because she can accurately see how others are feeling and she knows what to do to help them.

The Project

After discussing the target children's profiles, I began to see which children I needed to observe more closely and what behaviors I should look for. I videotaped for five weeks (three days a week). Some days I was able to videotape for over one hour and other days, the videotaping was minimal. I knew the role of the student assistants was going to be important but I never realized how much until the videotaping began. The students were basically taking over the position of head teacher as I was focused on the videotaping. I was of course available for assistance but most of my mornings in the classroom were spent in videotaping. When I first began videotaping I stayed at one activity for a long period of time and watched and observed the children entering and leaving the activity. After a few weeks I decided to follow each individual child for a long period of time in the morning so that I could observe how they enter the room, approach an activity and transition.

After videotaping each day, I came home and first wrote in my reflexive journal and then watched the tape from that day. I took extensive notes in the journal about what I videotaped. I would often have to watch and rewatch certain clips of the children in order to try to interpret their behavior and why they were behaving in the manner that they were. The following is a description of the seven target children and their ways of learning based on videotaping during the data collection period and my notes from the reflexive journal.

Sophie

After just a few days of videotaping and observing Sophie closely, I noticed that in almost every step that Sophie makes she is singing, dancing, smiling, and moving to music. It is as if she is singing while talking. The syllables of the words are strung together as if she is singing. When Sophie walks into the room in the morning she takes a few minutes to observe the activities that are set up around the room. Sophie sometimes brings a transitional item with her to school. The most brought item that I have noticed is a little stuffed puppy. She does not carry the puppy around with her though she puts it in her cubby as soon as her mom leaves and before she gets involved in the classroom. When her mother leaves her and not approached by a teacher, Sophie will slowly walk from activity to activity to see what they are and who is at the activity. Sometimes Sophie needs no help involving herself in an activity and sometimes from her facial expressions and body language, the teachers can see that she may need some help facilitating exploration of the activities. Once Sophie is involved in an activity, she is fine and the teacher leaves. Sophie is very independent and has no problems playing by herself. She participates in pretend play often by herself. For example, several times throughout the videotaping, I caught Sophie up on the loft pretending to wash her hair and sometimes she would ask a teacher to come with her so that she could pretend to wash their hair. She is very accurate and detailed in her hand gestures and body language. She twists her hand from side to side to turn the water on behind her head and she twists and turns two knobs. She fluffs her hair as if she is lathering it with soap and she also pretends to wash it out with water. She often sings and hums to herself as she is washing her hair or another teacher's hair.

I noticed right away Sophie's love of music, singing and dancing. Although I caught this on video several times, there is one time in particular that was extremely memorable. Sophie went under the loft to "cook" in the kitchen. As she was "cooking", Sophie glanced at herself in the mirror and began cocking her head from side to side and then she started singing and dancing. Her singing was predominantly "lalalalalalala" or sounds similar to that and not words that I could understand. She was very lively moving her arms from side to side and kicking her legs out. Sophie was animated in her movements and rhythmic in her dancing. Her movements were repetitive and graceful. She had nice control over her body movements and genuinely looked content as she watched herself in the mirror. Yet another example of Sophie's love of music and ability to connect songs with almost any activity happened when she was observing another child playing on the computer as she was waiting for her turn. Sophie patiently waited for her turn and as she was waiting she began singing the "A-B-C" song over and over again. When she was singing, she put her hands and head into the beat of the song.

Reflection:

Looking back through my notes and the data that I collected through videotaping, I have a better idea of how Sophie learns during child initiated, teacher guided activities. Sophie enjoys activities that require body movement and skill. She enjoys dancing, jumping and will often add these physical characteristics to activities. Sophie learns and represents her knowledge and understanding of the world around her through movement and dance. She also reaffirms her sense of self through these types of activities. Sophie's humming and singing may help her stay on task and be used as a tool for self-scaffolding while working on activities.

Chrissy

When Chrissy enters the classroom, she is usually smiling but approaches the classroom timidly. She can be seen hiding behind her mom or dad's legs. Routinely, Chrissy brings several transition items with her to school everyday. There are one or two items like her doll that she brings everyday and then she brings many others as well. Chrissy usually first walks with her mom or dad to her cubby to put away her jacket and toys and then she takes a look around the room to see what she wants to do. Chrissy is quite versatile in the activities that she chooses and the people that she chooses to play with. Sometimes Chrissy will gravitate towards an activity because her close circle of friends are there. What I noticed more recently with the last few weeks of videotaping was that Chrissy has been participating in activities that Kelli and Sally are not participating in. Chrissy has had a few transition issues lately and one hypothesis was that Sally and Kelli immediately participate in play when they are in the room together whereas Chrissy takes a few more minutes to observe and think about what she wants to do. Reading is one way that Chrissy transitions in the room. The happiness and contentment of being read to can be seen on the look of her face as she smiles. Chrissy is very affectionate and I have seen her and experienced for myself her place a hand on a teachers arm or face as she is concentrating on listening to the story. Chrissy works really well with other children in groups. She has an extensive vocabulary and has the ability to get her thoughts and feelings across to her friends. If she is with Kelli, Sally and Lilly, Chrissy tends to be more of a follower of Kelli and Sally. She is still vocal but her ideas and plans do not get played out as much as Sally and Kelli's. When I have seen Chrissy with other children that she does not play with as much, she is more of a leader

because of her ability to vocalize her thoughts whereas the other children may not have that ability.

Chrissy is very gentle, smooth and calm with her movements within activities. One day there was colored ice and water in the media table. Chrissy approached this activity and first watched before jumping in to the activity. Chrissy first began exploring the mixer gently. She never splashed the water or dropped water on the floor. She moves quite adroitly and definitely experiences most activities to the fullest but within a smooth direction. This play with ice cubes suggests Chrissy's vast imagination and love for drama and telling stories. Chrissy began calling the little ice cubes "fishes." The ice cube trays were used for "the fishes to sleep" and they were making "fish cookies" for the fish to eat. Another example of dramatic play is the almost everyday "kitty cat" play that several of the children participate in. Usually the children including Chrissy are kitty cats and for the most part their roles come in the form of mom's, daddy's and babies.

Like several of the other children, Chrissy often sings and hums as she is working. Almost everyday at group time, Chrissy likes to teach us a new song that she has made up. One day Chrissy had made up a song about caterpillars and she wanted to sing it to me. I was able to catch it on video. Chrissy used her hands and legs to move them back and forth almost to animate or make live the caterpillar she was singing about. The following is the song that Chrissy sang several times at snack time:

"Caterpillar go up the tree.

Caterpillar go up the tree.

Caterpillar go up the tree.

Caterpillar go up the tree.

You are so lucky.

You are so lucky.

You are so lucky.

Hey, Hi, Ho, Hoo,

Hallee, hallee, doo doo, hallee hallee, doo doo.”

After the song she continued to sing using words such as “diddledoodleday.” She rhymed the words but they were technically not English words. Even though the first four lines are the same, when Chrissy was singing them, every line was different because of where Chrissy decided to stress certain syllables in the words through the inflection in her voice. Chrissy has a great memory and was able to repeat the song more than one time and get the words correct both times.

Reflection:

Chrissy tends to learn when she is in the company of other children and adults, using her creative, descriptive language to demonstrate how she perceives the world. Chrissy often observes what is going on around her before she jumps into an activity. She seems to be deliberate in thinking about what she is about to work on before engaging in an activity. When not working with children, Chrissy often seeks the company of teachers or adults as if she is looking for someone to scaffold her into increasing her understanding of and expanding her knowledge of the world around her.

Sally

Sally has a twin sister, Chrissy, and both of them enter the room in similar ways. Sally is often timid and tip toes into the classroom smiling. When she enters the room she is usually carrying several toys from home and her transition blanket. The difference

between Chrissy and Sally is that Sally seeks out Kelli right away and if she sees Kelli, she will gravitate towards Kelli. For example, one morning Kelli was already at school dressed in a ballerina outfit dancing in the middle of the classroom. As soon as Sally walked in and saw Kelli, she ran towards Kelli and began dancing with her. Their styles of dancing were different. Where Kelli would twirl a lot, Sally would stomp her feet and take turns stomping her feet. The two girls would hold hands and move back and forth and from side to side. Kelli sometimes acts a transition person for Sally in the classroom because if Kelli is not there, a teacher usually helps Sally transition to an activity or reading a book. Sally likes to play with her toys and incorporate them into her play with the activities if possible. A trend that I have noticed lately between Sally and Kelli is sharing. Sally is very giving with her toys to Kelli and let's Kelli play with them all day and even take them outside. Sally has built a relationship with Kelli based on trust and respect and Sally knows that Kelli will return the toys to her by the end of the day.

When Sally is interacting with other children in groups, she tends to be more of a leader. She is very vocal and can raise the pitch and tone of her voice to make sure that she is heard. One morning when Chrissy, Kelli, Lilly and Sally were playing cats, Sally wanted to make sure that all of them were holding each other's tail in their mouths so that they were all connected. Sally would stand up and look to make sure that the other three girls were holding the tails in their mouths. Sally really enjoys being in the company of other children or other teachers. She is rarely found to be playing by herself. On one particular morning, the manipulative activity was Gak and little plastic insects. Sally, Kelli and Lilly were all participating in this activity and the girls were debating over whether a particular insect was a centipede or not. Sally strongly asserted that she

thought the bug was a centipede. She then pulled out the dragonfly. Kelli and Lilly physically moved away from Sally since she was holding the dragonfly and said that they don't like dragonflies. Sally affirmed that she likes dragonflies and thinks dragonflies are nice. When Sally was classifying the different insects, she would raise her voice and make it higher or lower depending on the insect. As Sally was classifying the insects, she was able to sub group insects. For example, the girls were pretending to be the insects.

The following is a conversation between Lilly and Sally:

Lilly: "This is a grasshopper."

Sally: "Come here grasshopper. This is not a grasshopper."

Lilly: "What is it?"

Sally: "It's a kind of centipede."

Sally was able to look at the insect and realize that because of its looks and texture, it was related to the centipede.

Reflection:

Much like Chrissy, Sally has the tendency to learn in the company of others. She will listen to others' ideas and take in what she has learned from them. Sally tends to learn through exploration. She likes to throw herself into an activity right away and then decide whether she wants to stay with the activity. Sally is quite dramatic. Her understanding of the social and physical world is reflected through her interactions with others especially as she participates in dramatic play with Chrissy, Kelli and Lilly. She is usually one of the leaders in the group because she has the creative ideas and she is a good storyteller.

Kelli

Kelli is a very confident girl who has a common routine every morning. Because she lives over forty-five minutes away, she comes in every morning and brushes her teeth with her mom. Kelli typically does not bring any transition items to school with her although she has several times brought in her ballerina outfit. Sometimes she wears it and sometimes she does not wear it. Kelli really likes to hold or play with Sally's toys from home when Sally is at school. I have even seen Kelli get Sally's toys from her cubby when Sally is not in school but because of the relationship, Kelli knows to put the toys back before she goes home. Kelli is very vocal and can be quite persistent to achieve her goal. She is a natural leader and enjoys the attention of being listened to and conformed to. Kelli tends to play with Sally, Chrissy and Lilly when any of them are in school. On one particular day, none of her close friends were at school so I had the opportunity to watch how Kelli interacts with children she does not normally engage with. The following is an excerpt from her conversing with Adam:

Kelli: "Adam, come with me, I know where the tails are. Someone drew on the carpet. Was that you Adam?" After Kelli did not get much reaction out of Adam, she crawled and meowed to a student teacher and says, "I'm a kitten." Kelli went to approach Adam again and to show how she likes people to conform to her states, "Why don't you take your shoes off just like I did Adam?" Several times throughout that morning I observed Kelli approaching the other children and saying hello when she normally does not do that when her close friends are around. When Kelli is around Chrissy, Sally, and Lilly she is a leader with Sally.

When Kelli puts her mind to something, she doesn't stop until she is finished. Kelli has no problems working by herself. The times I have noticed Kelli working by herself is when she was originally with a group and then on her own either saw another way of extending the activity or found something that interested her nearby. One day when Chrissy, Lilly, Sally and Kelli were in the studio, Kelli showed this behavior. The girls were exploring dragon teeth and rocks and they became engrossed in hiding "treasures" (beads) among all the rocks and teeth. Kelli noticed yarn nearby and moved herself outside of the group to the step and began to try to bead and make a necklace or bracelet. She was working alone for quite a while. Kelli also possesses the ability to multitask. Even though Kelli was concentrating on beading, she piped up once the other girls began talking about the dragon teeth. Kelli reaffirmed her immense knowledge of a variety of things when she began to talk about how she was scared of dinosaurs but not longnecks because they are nice. After this conversation, Kelli's work with beading came to a stop.

Kelli is a child who will participate in almost any activity. She tends to first go where her friends are. There is not one particular area of the classroom that Kelli likes more. When she pretends to be a kitty cat, most of that dramatic play happens under the loft. Some of Kelli's main interests are dinosaurs, insects and animals, cars and trucks. One of the activities in the classroom one morning was to help the children make their own insects. Kelli spent a great deal of time at this activity and with the help of a student teacher, completed two insects. Kelli made active decisions in the making of the insect and I could almost see that she had a picture of what she wanted to make in her head. Kelli made a caterpillar out of a straw and when I began observing, she was drawing legs

with a purple marker. The following is conversation between Kelli and the student teacher about the insect:

Student: “What do we need to do now?”

Kelli: “Make antennas.”

Student: “How?”

Kelli: Looks around the table to see the supplies and answers “string.”

Student: “How should we put them [the antennas] on?”

Kelli: “Don’t make them too long.”

After Kelli completed her insects, she was very proud of the work that she did and showed off her insects to other teachers and children.

Reflection:

Having meaningful interactions with other children is very important to Kelli. Kelli usually seeks out the company of her peers or teachers. Kelli learns and explores the world around her through her interactions with other peers or teachers. She seems to have a good balance between working alone and working with other children. She learns from hands on exploration and manipulation of a variety of materials. Kelli is not afraid to try new activities and she is not afraid of the unknown. She shares her knowledge of the world through her interactions and she also enjoys teaching others about what she knows.

Brett

Brett enters the classroom well ahead of his dad or mom. He is usually carrying his big stuffed animal bear. Brett walks into the classroom quite confidently and drops his bear on the floor and heads to the activity of choice. Brett will usually head over to the media table to see what is going on there. A teacher will usually have to remind Brett

to put his bear in his cubby instead of on the floor. When Brett chooses an activity of interest, he usually explores and experiences the activity to the maximum. For example, one day Brett came across a long piece of Styrofoam and with the facilitation of a teacher made a rocket ship. Brett spent quite a while on this and was proud of it when he finished. A little later in the morning, Brett found the fish net that we use to take the fish out of the fish tank and explored it to the max. Brett put his hand in the net and noticed how his hand could not make it all the way through but that the net was inside/out. He pulled his hand out of the net to see what happens. Next I observed Brett putting small objects such as a little car and bouncing it up and down. Brett got the idea that he wanted to tape the fish net to the rocket ship. After I told him that the fish net was the only one that we had and that if he taped it to the rocket ship, we could not use it, he got upset and marched away. He marched back after a few minutes and tried to figure out a way to attach the fish net to the rocket ship. During this time, Brett did not ask for help from anyone and while I was taping, I could see him talking quietly to himself as if he were talking himself through the process but he was not loud enough to hear.

Brett has an amazing way with words. He is extremely vocal and when he talks he seems as if he is talking loudly, as if he is screaming. Brett always knows what is going on around the room and does not hesitate to let the teachers know. One morning, Brett would announce to me when a child entered the room just to make sure that I knew. When he noticed that Tom and Maggie were up on the computer without a teacher, he stated, “ they are not being safe up there.” Brett took what he has heard the teachers say to the children before to tell us what his friends were doing. He listens to everything that the teachers say although depending on his concentration in an activity he may not let us

know that he is listening. Sometimes I will have to repeat myself several times until he acknowledges my talking to him. When Brett gets excited, the excitement travels throughout his entire body. Brett was mixing red and yellow paint and when he saw that he made green he smiled real wide and exclaimed, "It makes green!" He put his hands up in the air with great joy and then wanted to repeat the mixing of the colors over and over again. Green is Brett's favorite color and sometimes he tends to believe that anything that is green is his but we have told him that it is not true all the time. Brett will use his ability to use his words to negotiate with his friends to get the toys that he wants. As I said before, Brett throws his entire body into activities. He rarely walks from center to center, he scurries. The day we had insects at the art table with GAK, Brett saw a bee and began flapping his arms and making buzzing noises. Another activity one morning involved white playdough and Brett decided that he wanted to make an elephant out of the playdough. As one of the teachers was assisting him, he began to make elephant noises and put his arms out in front of his nose and mouth in order to make a trunk of the elephant.

Brett really likes activities where he has to figure things out and when he does, he likes to teach others and make sure they understand and are doing it the right way. One morning we had a pulley with rope with a vacuum chute hanging over the media table. Brett was trying to figure out where the balls were coming from. As he is looking into the end of the vacuum chute he asks, "Did this come from there?" Almost immediately, marbles came rolling over to the floor where Brett was standing at the media table and he says, "where did these marbles come from?" He walked around the classroom until he found the activity that the marbles were at and then returned to the pulley. When he

returned, Maggie was at the media table trying to figure out the pulley and Brett noticed that she was pulling the rope the wrong way so he emphatically shouts, “No, it’s not that one, it’s this one.” Brett wanted the pulley exercise to work for Maggie and he asked a teacher to get the rope down, as it was too high for him to reach so he asks, “Can you set that down for Maggie?” When it was Brett’s turn, he described what he was doing. He said, “Yes, now I am putting the ball in.”

Reflection:

Brett most definitely learns through exploration. He needs to experiment and manipulate the materials himself to fully understand how the materials operate. Brett is an intentional explorer and almost always has a final goal or product in his head. When his vision is not produced, Brett does get physically upset and will ask for assistance and try to explain to the teachers what he needs so that the teachers can help him. I have observed Brett use private speech to help keep him focused, on task or to help him figure out the next step in his plan. He also learns through reading as enjoys listening to books and often gets really excited when he reads about something that he knows about. Brett tends to be able to focus a lot better when he works with smaller groups of children. In these situations, he is able to relate his thoughts and feelings across to the group. Brett’s knowledge and understanding of the world is demonstrated through his ability to verbally describe and dictate what he is doing at any given moment and his ability to observe closely what his peers are doing around him.

Austin

Every morning when Austin comes to school, he sits outside of the classroom on a stool and watches to see what is going on in the classroom. Sometimes he sits outside

for a long time and sometimes his mom or a teacher can convince him to come inside quicker. Austin is not upset or sad, I think he likes the extra attention of someone specially having to sit outside with him and bring him in the classroom. Austin's favorite place in the classroom is up on the loft. He loves the computer but he also likes to go up there because it is usually a quieter space for him to observe and think. Almost every morning, a teacher will help to get Austin get involved in an activity in the classroom. If he is not interested in any of the activities right away, usually we can get him involved in the classroom by offering the paint program on the computer. Austin enjoys having a teacher work with him on activities. When he is working one on one with teachers, he is very vocal and talks a lot when he gets comfortable. He uses full sentences and has an extensive vocabulary. Austin will rarely interact with other children on his own; he usually requires someone to approach him. He plays well by himself after he has adjusted to the classroom environment.

Austin is very knowledgeable about computers and enjoys sharing his knowledge with others. He asks questions when he needs to but Austin predominantly learns from constant observation and interpretation of what is going on. One morning after he painted a picture on the computer he pressed print and anxiously awaited the painting to be printed. As he was intently watching the printer, he asked, "Can you open it for me so I can look at the inside?" He was really interested in the works of the printer and continued to ask the teacher about the printer: "Where's the inside come from? Is it working now? What's that light doing?" Austin is constantly asking and wanting to know about the printer and the scanner. He knows how to save and print and he enjoys sharing this knowledge with his friends.

Austin is a keen, sharp observer and often learns through watching others. He typically does not talk; he is usually quiet. I feel like Austin figures out things in his head. He does not manipulate much with his hands to figure things out. He constructs his knowledge through watching others. For example, Austin watched one of the student teachers closely as she modeled for him how to pull the rope down, put the ball in the tube and pull the rope so that the tube would raise and the ball would drop. Austin listened to the teacher give directions and he soon began to actively participate in the activity. Austin knew what to expect; he knew and understood what was going to happen. Austin uses his eyes to follow the tube to see where the ball was going and where it was going to come out. There are several more examples of Austin observing and learning through others around him. Even when Austin is involved in an activity, he is constantly lifting his head up to see what is going on around him. Whether it is the marble works game, the art activities or sitting under the loft, Austin is continuously looking around him.

One behavior that became clearer to me is how the environment easily affects Austin. He easily copies the behaviors and actions of other children that are usually out of his typical character. One morning Austin was under the loft with Maggie lying on the pillows and blankets. Maggie was screeching and giggling under the loft and Austin would copy and imitate her screaming and screeching. Maggie would cover herself up with a blanket so Austin would cover himself up with a blanket. Several times now when we have gone on walks around Wallace Hall, Austin will begin to run and scream after he sees Aaron do it. He follows Aaron around and mimics his behavior. Austin easily emulates the behavior, language and sounds of those around him.

Reflection:

Austin most definitely is a keen, sharp observer of the environment and sounds around him. Austin's predominant method of learning about his surroundings is through deep observation and reflection of what he sees. Austin tends to be able to focus better when he works alone or in small groups. Austin usually feels more comfortable working alone and would choose to be alone rather than work in small groups. When Austin does work in small groups it is when other children that he feels comfortable around initiate the interaction and if Austin is comfortable and has had time to adjust, he will join the group. He is seldom the leader of the group and mostly he does things his way or he follows the lead of others. Austin carefully watches those around him and then follows. Austin almost always knows what is going on around him and what the other children are doing. He can tell me, and does, periodically during the morning what activities his peers are involved in and where they are. Austin shares his knowledge of the environment through his ability to share with his teachers and some peers what is going on around him. He likes to interact with children who will give him the chance to speak easily.

Lilly

Lilly gets dropped off by her parents right outside of the door. They open the door for her and she enters the classroom by herself. Right away, Lilly knows to go to her cubby, take off her jacket and put away her toys. Lilly usually brings a transition object to school everyday. She has about two or three that she brings interchangeably to school. Lilly is a very sweet, giving, empathetic child. When a child is hurt or upset, she tries to do what she can to make them feel better. One morning as soon as she entered the classroom, she saw that Kelli as upset lying on the floor. Lilly ran over to Kelli and asked

her what was wrong. Kelli did not respond so Lilly patiently pushed back Kelli's hair from her face and rubbed her face gently with her hands. Lilly has a very soft-spoken voice so many children and teachers feel that Lilly is quiet. After videotaping, I realized that Lilly is a lot more vocal and interactive with other children than I thought before. She does talk quite a bit but is not always heard because of her soft voice. Because of the tone and softness of her voice, Lilly tends to end up being more of a follower. One morning when Kelli, Chrissy, Sally and Lilly were playing kitty cats, Lilly wanted to be the mom cat. As soon as Lilly said she wanted to be the mom cat, the other girls wanted to be the mom cat as well. As all the girls were discussing this, Lilly's voice was not really heard and Kelli ended up being the mom cat. Lilly does assert herself but because her close friends are louder than she is, their voice is heard over her own. Lilly does not seem to mind this dilemma. She seemed content just to be a kitty cat and interacting with the other children.

Lilly tends to sing or hum quietly when she is working. This is behavior that I have never observed before I began videotaping. I have observed her humming while she was playing with the Gak and the insects and while she was under the loft in the kitchen looking for kitchen utensils and she was humming. I have noticed this singing/humming more when she is working by herself than when she is working with other children. Almost every morning we play music in the classroom and I have often times heard Lilly sing the song that is playing. Lilly works well alone and in groups in the classroom. If there are no children or teachers to play with, Lilly always finds something to do or an activity to join. When Lilly gets involved in an activity, she explores it to the fullest. One morning, one of the students left out a flour and water mixture along with cutout

circles from yellow poster board. Lilly began this exploration by making “sandwiches” by putting two circle pieces together with the mixture in the middle. Lilly further explored this mixture by dipping the circle in the mixture. After continuously dipping the circles in the flour/water mixture, Lilly states, “If I dip all of them in here, they get real moon and mountainy.” After using the circle pieces to manipulate the mixture, Lilly finally felt comfortable to feel it with her fingers. She observed closely how the mixture looked all over her fingers. After she played with the mixture with her fingers she further investigated the mixture by piling as much of the mixture as she could on one hand. After this Lilly was still not done and she decided to spread out the little cutout circles all over the table and put a little bit of the mixture on each circle. There was one large cut out circle that Lilly had not really experimented with but the end of her inquiry with the flour/water mixture came when she dipped the big circle into the mixture, she left it there and then went to wash her hands.

As shown in Lilly’s working profile, Lilly on several occasions likes to categorize different mediums. One morning when the children were investigation Gak and insects, Lilly took certain insects and almost perfectly lined them up in a straight line on the art table. When a teacher asked her what she was doing, Lilly said that she was lining up all the bugs that she did not like. When other children came to play at the table, Lilly allowed them to play with the bugs that she was playing with. Lilly went off to explore another activity and later on in the morning came back to the insects and the gak. This time she lined up several bugs once again but this time she placed all of the green colored bugs in the middle of the line.

Reflection:

Lilly is a very sweet, caring, loving, empathetic child. She is keenly aware of other's feelings and is always wanting and willing to help in any way that she can. I feel that in order for Lilly to be so introspective of other children, she must be highly introspective about her own feelings. Lilly does experience different feelings but she on her own knows how to appropriately regulate them and she knows what to do to help herself. Lilly learns best through experimenting and manipulating materials to their fullest. Lilly shares her knowledge of the world through her categorization abilities. I believe that Lilly's propensity to sort and organize helps her learn about the materials (the insects and dinosaurs) in a way that she can comprehend.

Summaries of Target Children's Current Intelligence Profiles:

Having described the seven target children's ways of learning based on the videotaping, the following are summaries of the current intelligence profiles for each child based on the data collected. Sophie still tends to learn through musical and spatial intelligences. Chrissy uses her linguistic, interpersonal, and intrapersonal intelligences to aid in her learning as she has for the past two years. Sally uses her linguistic and interpersonal intelligences to help her through the learning process. This has continued over the last two years also. Kelli still tends to learn through the use of her linguistic, spatial and interpersonal intelligences. Brett proceeds to learn through the use of his logical mathematical, bodily kinesthetic and interpersonal intelligences. Austin still continues to possess linguistic and intrapersonal skills that help him learn. After the data collection on Lilly, I came to see that she uses several different intelligences to learn including logical-mathematical, intrapersonal, interpersonal and spatial. These

intelligence profiles are my interpretations of how the children used their multiple intelligences to learn. I decided to broadly make interpretations of how I see the children learning therefore like Howard Gardner suggesting that the children use several intelligences to help them learn since they are still developing. I understand that my interpretations are based on the age that these children are at now being in preschool. I also realize that the children's propensity's for learning my change throughout their development years.

Chapter 4:

Discussion

In this study, I explored how children learn during child initiated, teacher guided activities based on how the children use their multiple intelligences. Specifically, I was interested in documenting and interpreting children's learning processes based on how they used their multiple intelligences. I spent five weeks videotaping the children's behaviors and interactions in the classroom and I was able to collect an immense amount of data on the seven target children. Through interpreting and analyzing the children's behaviors, I was able to gain a better understanding of children's learning processes and their propensities for learning. The main research question that guided this study was: How do young children learn through the use of their multiple intelligences during child initiated, teacher guided activities? To help answer the research question, we came up with three assumptions that we were hoping to discover. *It can be assumed that:* (1) Teachers and researchers can identify a child's intellectual profiles according to their propensity for learning and problem solving in particular ways. (2) Children do possess different intelligences and have different ways of learning. (3) Children with similar intelligence(s) might approach learning situations in varied ways.

Through the process of intelligence profiling my advisory committee members and I at first thought that it may be a possibility to assign each child with only one multiple intelligence. However after discussion and further research, we came to the realization that children may use different intelligences or several intelligences combined to approach problem-solving situations. As the problem solving situation changes, the way the children and what intelligences the children use may change. Through the

process of profiling, the three members of my advisory committee and I did have different ideas of how to interpret the definitions of Gardner's intelligences. We had a difficult time coming to complete agreement with the definition of bodily kinesthetic intelligence in terms of preschool children. This may suggest that definitions of intelligences in terms of young children should be developed. We also contemplated how to observe intrapersonal intelligence because it is such an internal behavior. While reviewing past data on the target children, we kept in mind that development in young children is integrated and that intelligences are being constructed through relationships in various contexts. These preschool children are still exploring so many different mediums and manipulating materials around them. They are flexible and integrative in their learning. We came to the conclusion that children definitely have propensities and dispositions towards certain ways of learning. Keeping these dispositions in mind, perhaps the teacher or educator could develop curriculum and activities that allow the child to use their propensities towards learning to achieve their goal.

Reflecting back through the target children's original intelligence profiles and their current profiles, I came to the conclusion that none of the children's profiles changed except for Lilly's. After intense observation during the data collection period, I observed that Lilly also possesses interpersonal strengths as well. The more I think about it now, Lilly may have always had the interpersonal propensity for learning but because of her soft voice and naturally quiet demeanor, these skills may have been overlooked. Table 2 shows the target children's original intelligence profiles and their current profiles:

Table 2: Target Children's Intelligence Profiles

	ORIGINAL INTELLIGENCE PROFILES:	CURRENT INTELLIGENCE PROFILES:
Sophie	Musical and Spatial intelligences	Musical and Spatial intelligences
Chrissy	Linguistic, Interpersonal and Intrapersonal intelligences	Linguistic, Interpersonal and Intrapersonal intelligences
Sally	Linguistic and Interpersonal intelligences	Linguistic and Interpersonal intelligences
Kelli	Linguistic, Spatial and Interpersonal intelligences	Linguistic, Spatial and Interpersonal intelligences
Brett	Logical-mathematical, Bodily-kinesthetic and Interpersonal intelligences	Logical-mathematical, Bodily-kinesthetic and Interpersonal intelligences
Austin	Linguistic and Interpersonal intelligences	Linguistic and Intrapersonal intelligences
Lilly	Logical-mathematical, Spatial and Intrapersonal intelligences	Logical-mathematical, Spatial, Intrapersonal, and Interpersonal intelligences

I thought it was interesting to see that over the course of almost two years, the children's propensities for learning have remained fairly consistent. The ways in which the children transition, approach activities and interact with other children have stayed the same over the course of the time that I have know them. I understand that perhaps the ways that the children use their multiple intelligences has changed but their intelligences and their interactions with their learning environment have stayed the same. There are several theories as to why this consistency may have occurred. Throughout the last several years, the children's main learning has been through play and exploration of different materials and mediums. Because of the age of the children and where they are developmentally,

play is the most appropriate way for the children to gain knowledge about the world around them. The children's temperament and disposition towards learning has probably remained the same over the last few years, which may aid in the children's propensities for learning.

Table 2 shows the target children's predominant intelligences. The children use these predominant intelligences during child initiated, teacher guided activities. Teachers and educators should be strongly encouraged to use this helpful information on children's propensities to learn to help strengthen these skills. By encouraging children's multiple intelligences, teachers are helping children learn through the way they know and understand best. Through this process, this may motivate children to continue to learn and challenge themselves if they know they can succeed. Just as it is important to encourage their strengths, it is equally important to encourage the children's lesser-used intelligences. Thomas Armstrong believed that children have the ability to possess each intelligence to some degree. Armstrong (1994) also stated that children can learn how to strengthen lesser-used intelligences through education and instruction.

Throughout the data analysis process, it was interesting to see how the children's different intelligences compliment each other. Thomas Armstrong (1994) reminds us that intelligences work together in complex ways (p.12). No intelligence exists solely by itself. The intelligences are often taken out of the context so that their features can be examined more closely (Armstrong, 1994). Armstrong strongly believes that it is important to put the intelligences back into the context to see how the intelligences work together. I often wondered if there was ever a connection between having linguistic intelligence and interpersonal intelligence. Several of the children in their profiles

possessed both these intelligences and are quite vocal, descriptive and have immense vocabularies. Could this be a reason that several children who are verbal are also interpersonal? After reading and reflecting on Armstrong's theory that the intelligences are always working together, I realized that the dependence of the intelligences on each other and the continuous interactions between them may also be one reason that the children's intelligence profiles stayed consistent over the course of the two years.

From the data collection process and reflection on the process of profiling children, identifying several propensities for learning for each child is appropriate for preschool children. It is possible to see the children's predominance towards certain ways of learning through their play opportunities, specifically child initiated, teacher guided activities. Because the children possess several propensities for learning and because of the age of the children, it is important to plan open-ended activities for the children to explore and learn based on their multiple intelligences. This kind of learning environment, like the one at the Virginia Tech Child Development Lab School where the study took place, is grounded in a social constructivist philosophy. This philosophy emphasizes that knowledge and understanding of the world and environment are constructed through interactions and relationships with the environment and the people in the environment. Constructing this type of learning environment for the children allows them infinite possibilities for using their multiple intelligences to gain better understanding of the world around them.

Planning open-ended activities based on a negotiated curriculum gives all members of the team (teachers and children) a chance to contribute to the program. Specifically in the preschool environment at the Virginia Tech Lab School the teacher's

plan and implement activities and lessons based on the children's exploration and interests in the classroom. Again this gives the children multiple opportunities to expand learning based on their own fascination of particular themes.

The main way that I assessed children's multiple intelligences is through observation and reflection of the children's behavior. To make the assessment more reliable, some other resources could be used. For example, an interview with the child's parents or having the parents fill out some sort of report on their child's propensities for learning could help the assessment become more reliable. There seems to be a need to find ways to enhance the process of assessing multiple intelligences in young children. Furthermore, redefining multiple intelligences for young children may aid teachers and educators in assessing children's multiple intelligences. Gardner went on to state that there are several ways of assessing children's multiple intelligences without the use of standardized testing. Gardner (1993) believed that the assessment techniques that we choose as teachers and educators should focus on "genuine problem solving or product-fashioning skills in individuals across a range of materials"(p.31). Gardner (1993) proposes focusing on measuring the intelligence by materials that represent that intelligence (p.31). Another important aspect of assessment according to Gardner includes the child's ability to solve problems or create things that are based on the materials used for that specific intelligence. As long as the classroom is set up with a range of rich materials that evoke the use of several intelligences, teachers are able to observe which areas of the classroom the children gravitate towards; therefore becoming more aware of what materials the children are skillful at using.

Gardner (1993) also suggests that in order to be able to assess children's multiple intelligences, the classroom environment must possess a wide range of materials and mediums that stimulate the children's different intelligences (p.222). This type of environment can be found at the Virginia Tech Lab School where the study took place. The rich classroom environment provides children with plenty of opportunities to work with materials that they may later be assessed with. Being assessed in this fashion, in an environment that is safe, secure and comfortable and playful may yield better results than a standardized testing environment. Gardner goes on to suggest that one way children can explore materials is to first observe competent adults or children skilled in a certain field manipulate the materials. Gardner's emphasis on an "apprentice-master" setting is similar to the concept of scaffolding. Tharp and Gallimore (1988) defined scaffolding as not simplifying the task but simplifying the role of the child in the task through assistance of an expert or adult. Some examples of scaffolding include shaping and modeling. Shaping involves the adult or expert breaking down the task into a series of steps or goals therefore simplifying the task for the child (Tharp and Gallimore, 1988). Children also model and imitate each other's behavior. As children are modeling each other, they are guiding each other even closer to accomplishing a specific goal. While the children are interacting with one another, they are moving each other towards a higher level of understanding and one step closer towards mastering the skill (Tharp and Gallimore, 1988). Through the process of scaffolding, the child at first is able to accomplish the task with assistance and after this, the child is able to perform the task independently. By collaborating with peers of different cognitive skills, children will be able to maximize their cognitive strengths while being introduced to new skills.

Triangulation of Methods:

To ensure the trustworthiness of this study and the data that was collected, I used multiple sources of data collection such as videotaping, observation, audio taping and keeping a reflexive journal. After analyzing the data gathered from all sources, I realized that the different data sources yielded similar results and discoveries. Based on this reflection, the discoveries of this study are sound.

Teaching Implications:

From this study and the data that I collected, I gained an immense amount of knowledge on how to use this data to provide better educational experiences for the children. The teacher must be an intimate observer and listener of the children. As a teacher and educator, I plan on taking the information that I gathered on the children's propensities for learning and provide a meaningful learning environment and curriculum for the children. In addition to being considerate of the different ways that the children learn, I plan on modifying the curriculum to help balance the different approaches to teaching and learning. With more intense observation, the children's intelligence profiles could be developed to inform other teachers of the children's learning styles. The profiles could also be used to inform the child's teacher from year to year of their predominant learning styles. Teachers and educators should also be in constant communication with parents about the child's growth and development and tendencies for learning.

The multiple intelligences model adds yet another dimension of looking at children's individual ways of learning. It is important to look at each child individually and recognize that every child learns differently. By being aware of the different ways

that the children learn, I can make sure that the activities I plan and the themes I am trying to teach the children are represented in multiple ways. This will give the children the opportunity to approach each activity in ways that they have propensities towards. This also gives the children the chance to learn and observe new ways of approaching an activity. By providing children with learning opportunities for the child to use their cognitive strengths, teachers are motivating children and encouraging them to learn. If children see that they can succeed, they may always have the motivation to learn. Gardner (1993) describes his multiple intelligences model as “education for understanding which entails the necessity for a ‘spiral curriculum’ in which rich, generative ideas are revisited time and again across a student’s career in school”(p. 192). Looking and reflecting on this type of curriculum makes me see how important it is for teachers to constantly communicate about the children’s profiles and ways of learning.

My Personal Development

Being the teacher as researcher in the classroom has given me the opportunity to observe and experience hands on the children’s behavior. This role gave me the chance to look within myself as a teacher and how I emerged through this role as teacher as researcher. One of the first ideas that emerged for me as I started this process is what my propensity for learning is. After taking the MI Inventory from Thomas Armstrong (1994), I confirmed what I already knew about my main propensity for learning. I was without a doubt an interpersonal learner. Knowing this information gave me the chance to reflect on my teaching style. I became to realize that most of the activities that I planned were activities that promoted group interaction and teamwork. Most of my focus at group time, snack time and outside time focused on the children working and

interacting with one another. I realized that through the intense observation period that it is okay for children to play alone. I thought about myself in group situations and how I enjoy being the leader in groups. I often do not like to be alone and work alone; I would prefer to work in groups. I learn from other individual's experiences and talking and interacting with others but I came to realize that not all of my target children learned the same way.

Being able to reflect on the way that I learn best really opened my eyes to seeing that children need to be given the chance to learn in the way that they learn best. As stated before, the role of the teacher becomes invaluable and extensive. Through my experience at the Virginia Tech Child Development Lab School and through this research process, I have learned that it is an art to stay in tune with the children and their multiple ways of demonstrating knowledge. Eisner (1994), values teaching as an art. Teachers must be in synchrony at all times with the different ways that children represent their learning. Reflecting on Eisner's theory that teaching is an art informs teachers and educators to be aware of children's many tools for understanding the world around them.

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APPENDIX A

University's Permission to Conduct Study



Institutional Review Board

Dr. David M. Moore
IRB (Human Subjects) Chair
Assistant Vice Provost for Research Compliance
CVM Phase II - Duckpond Dr., Blacksburg, VA 24061-0442
Office: 540/231-4991; FAX: 540/231-6033
e-mail: moored@vt.edu

MEMORANDUM

TO: Sonia Mehta HD 0416
Victoria Fu Human Development 0416

FROM: David M. Moore 

DATE: 21 December 2001

SUBJECT: **Expedited Approval** – “Multiple Intelligences and How Children Learn:
An Investigation in one Preschool Classroom” – IRB #01-560

This memo is regarding the above-mentioned protocol. The proposed research is eligible for expedited review according to the specifications authorized by 45 CFR 46.110 and 21 CFR 56.110. As Chair of the Virginia Tech Institutional Review Board, I have granted approval to the study for a period of 12 months, effective December 21, 2001.

Approval of your research by the IRB provides the appropriate review as required by federal and state laws regarding human subject research. It is your responsibility to report to the IRB any adverse reactions that can be attributed to this study.

To continue the project past the 12 month approval period, a continuing review application must be submitted (30) days prior to the anniversary of the original approval date and a summary of the project to date must be provided. My office will send you a reminder of this (60) days prior to the anniversary date.

cc:File

Department Reviewer: Joyce Ardetti

APPENDIX B

Virginia Polytechnic Institute and State University
Informed Consent for Participants of Investigative Projects
(Parent Informed Consent for their Child Form)

Title of Project: Multiple Intelligences and how Children Learn: An Investigation in one
Preschool Classroom

Investigator(s): Sonia Mehta, Victoria R. Fu, Ph.D.

1. The Purpose of the Research Project

The purpose of this study is to gain understanding of how children learn when they are engaged in child initiated, teacher guided activities. Specifically, children's learning processes will be documented and interpreted based on how they use their multiple intelligences. At this stage in the research, multiple intelligences refers to Gardner's model of multiple intelligence and his view of how children have many cognitive strengths. Ethnographic methodologies will be used to observe, document and interpret children's behaviors and interactions in the classroom. It is my hope that the findings of this study will add more understanding to the existing research by observing, analyzing, and interpreting how children learn using their multiple intelligences.

2. Procedures

As head teacher in the classroom, my role in this study will be a participant observer. As a teacher and researcher, I will be able to gain rich insight into how children learn using their multiple intelligences. I plan to videotape the children as they

engage in a variety of classroom experiences for the purpose of subsidiary information. The tapes will allow me to review and closely examine how children use their multiple intelligences during child initiated, teacher guided activities.

For this study, observation will occur during the first five weeks of the Spring Semester, 2002 (from January 22 through February 22, 2002). The tools of data collection will include field notes, a reflection journal, and videotaping.

3. Risks

There are no foreseeable risks to the participants. The study is designed not to cause any known discomfort or risk to participants. The interactions among children, teachers and myself shall occur in the classroom, which is a naturalistic setting for the children. Events will proceed like they usually would.

4. Benefits of this Project

The study results will be of benefit to teachers, parents and administrators who work with children in early childhood programs.

5. Extent of Anonymity and Confidentiality

The names of all children, families, and teachers will be kept confidential. Any information obtained during data collection or reported in the final written report will use pseudonyms rather than the names of specific participants. Only the researcher and the committee members will have access to the actual original data or information. The information will be stored in a locked cabinet under the researcher's supervision. All tapes of the classroom conversations and videotapes of children's play will be destroyed three years after the study.

6. Compensation

There is no specific compensation for the participation in the study.

7. Freedom to Withdraw

Please be aware that you may decide to withdraw your child's participation in the current study at any time without penalty.

8. Approval of Research

This research has been approved, as required, by the Institutional Review Board for Research Involving Human Subjects and by the Department of Human Development at Virginia Polytechnic Institute and State University.

9. Participant's Responsibilities

Upon signing the form below, I agree to let my child participate in this study.

10. Participant's Permission

I have read and understand my responsibilities according to the informed consent form. I hereby acknowledge the above and give my voluntary consent for my child's participation in this study. All of my questions thus far have been answered. I know that I will receive a copy of this form. I am also aware that I may withdraw my child's participation in this study at any time without penalty.

Signature

Date

Should I have any questions about the research or the conduct of the research, I may contact the following persons at Virginia Polytechnic Institute and State University:

Sonia Mehta, Investigator	Phone: (540) 951-9137
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Victoria Fu, Ph.D., Faculty Advisor	Phone: (540) 231-4796
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Dr. Joyce Arditti, Departmental Reviewer	Phone: (540) 231-5758
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David M. Moore, IRB Chair	Phone: (540) 231-4991
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SONIA R. MEHTA

1404J UNIVERSITY CITY BLVD. * BLACKSBURG, VA 24060
540.951.9137 * SMEHTA@VT.EDU

EDUCATION

Masters of Science, Child Development, May 2002

Virginia Polytechnic Institute and State University (Virginia Tech),
Blacksburg, VA GPA: 3.8/4.0

*Thesis: Multiple Intelligences and how Children Learn: An Investigation in one
Preschool Classroom*

Bachelor of Arts, Psychology, Minor Sociology, May 2000

Clemson University
Clemson, SC

GPA: 3.79/4.0

PROFESSIONAL EXPERIENCE

Head Teacher, Virginia Tech Child Development Lab School,
Blacksburg, VA

August 2000-May 2002

Director, Dr. Andrew Stremmel

- Lead Teacher for 15 children each year, ranging from age 2-4 years
- Implemented a negotiated curriculum
- Participated in Action Research projects each semester
- Worked with the investigation into the Reggio Emilia Approach and Teacher as Researcher
- Direct support for 14 undergraduate aspiring teachers in curriculum, professionalism, and age-appropriate interactions

Child Life Intern, Carolina's Medical Center, Charlotte, NC

May 2001-August 2001

Director, Susan Goode, CCLS

- Intern for a Children's hospital providing medical play and medical teaching for children and families
- Planned, organized, coordinated, implemented and evaluated bedside and group activities for children and siblings
- Became familiar with medical terminology
- Developed and understanding of other disciplines working with Child Life in a hospital setting
- Gained knowledge and experience of assessing children's needs while they are in a hospital setting

PROFESSIONAL MEMBERSHIPS

Presenter, Virginia Association for the Education of Young Children
Richmond, VA March, 2001
“Intergenerational Relationships: How can we facilitate positive
relationships between older adults and children?”

Presenter, Virginia Tech Department of Human Development
Professional Seminar
Blacksburg, VA February, 2001
“Intergenerational collaboration in Human Development: Adult Day
Services and Child Development Lab Programs.”

Participant, National Association for the Education of Young Children
National Conference
Atlanta, GA November, 2000

PROFESSIONAL ASSOCIATIONS

Child Life Council
National Association for the Education of Young Children (NAEYC)
Virginia Association for the Education of Young Children
American Psychological Association Student Affiliate

COMMUNITY ACTIVITIES

Psychology Club President 1999-2000
Psi Chi Treasurer 1999-2000
Psychology Club Vice-President 1998-1999

AWARDS RECEIVED

Citizen's Scholarship Foundation of American Fluor Scholarship
South Carolina Life Scholarship
Kathryn S. and Robert N. Small Presidential Scholarship
President's List-Spring 1998, Fall 1998, Spring 2000
Dean's List- Fall 1997, Spring 1997, Spring 1999, Fall 1999
Golden Key National Honor Society
Psi Chi
Phi Kappa Phi