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## The Impact of Training Teachers in Multiple-Intelligences Instructional Strategies

Mary R. Massey

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# The Impact of Training Teachers in Multiple-Intelligences Instructional Strategies

by  
Mary R. Massey

An Applied Dissertation Submitted to the  
Abraham S. Fischler School of Education  
in Partial Fulfillment of the Requirements  
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## Approval Page

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## Abstract

The Impact of Training Teachers in Multiple-Intelligences Instructional Strategies. Mary R. Massey, 2015: Applied Dissertation, Nova Southeastern University, Abraham S. Fischler School of Education. ERIC Descriptors: Professional Development, Multiple Intelligences, Howard Gardner, Classroom Management, Preschool Training

This research study outlined a professional-development program for training preschool teachers in Howard Gardner's theory of multiple intelligences. The program then continued training in practical applications of the theory for instructional use in the classroom. The preschool director and teachers' perceptions and experiences were documented and provided the data to assess the impact of the training on the instructional strategies demonstrated in the classrooms. Attention was paid to any impact on classroom management, teacher morale, and cohesive instructional vision throughout the school.

The data from this study revealed that the years of experience of the teachers proved to be the determining variable regarding the teachers' successful navigation of Gardner's theory from concept to practice. Neither the ages of the teachers nor the ages of the students proved to be a major factor. The training united the staff in that it benefited them professionally and personally, and their perceptions of one another were enhanced, as were their perceptions of their students. The teachers gained a greater appreciation for their students and colleagues as unique individuals, which positively affected their instructional strategies. Some teachers noted an improvement in the behaviors of children who had exhibited misbehavior prior to the training.

A future study might include larger classes and older children to determine how the results of this study would convert to such variables. A recommendation is for existing school systems to consider Gardner's theory of multiple intelligences as a foundation for learning and teaching. There is much to be learned from the successes of existing MI schools.

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## Chapter 1: Introduction

### Statement of the Problem

The problem addressed by this study involved the lack of consistency in instructional strategies and good teaching practices in a private preschool located in the southeastern United States. Because it is natural for young children to exhibit a certain amount of distractibility, it is sometimes difficult to determine whether preschoolers' behaviors are typical, off-task behaviors or whether the behaviors constitute misbehavior (Espy, Sheffield, Wiebe, Clark, & Moehr, 2011). Additionally, Levine and Ducharme (2013) contended that, in a classroom setting, significant numbers of young children are often engaged in varied behaviors that require special attention from teachers in order to maintain order, leaving it up to the teachers to control their own reactions to such behaviors to reduce unwanted behaviors rather than encourage such behaviors.

**Phenomenon of interest.** This research study was designed to examine the effectiveness of professional development for preschool teachers that focused on Gardner's (1983, 2011) theory of multiple intelligences. The teachers were using a traditionally designed curriculum, along with traditional instructional techniques and strategies. Under these conditions, there was no common perspective among teachers and staff regarding instructional strategies and techniques, and a fair amount of misbehavior had been documented due to children not being actively engaged in lessons and learning activities. The professional-development program was designed to provide the teachers with a new perspective through which to view their students (Palladino, 2009). Additionally, it was expected that the theoretical foundation of the program would equip the teachers with effective techniques and strategies to unite their teaching strategies and techniques and, ultimately, result in an improvement in student behaviors because their



students would be more fully engaged in learning (Ponitz, Rimm-Kaufman, Grimm, & Curby, 2009). The study's challenge was to develop and implement professional-development experiences for the preschool teachers that would increase their knowledge and understanding of Howard Gardner's theory of multiple intelligences. The concern lay in the relationship between the professional-development program and its effect on instructional strategies, classroom management, and teacher attitudes, and whether or not it would result in a common vision among the faculty and staff, effective teaching practices, positive outcomes in student behaviors, and growing enrollment at the school.

**Background and justification.** In the United States, children who score well on standardized tests are often perceived as intelligent (Sternberg, 2007). When a child scores 140 or above on a standardized IQ test, the child's intelligence is thereby measured and assigned a number, and he or she is labeled a gifted child or a genius (Armstrong, 2009). Much debate has taken place as to whether intelligence is limited to what is known and measured as general intelligence or if there may be more involved, something more complex, or perhaps a combination of functions that contribute to the nature of intelligence (Gardner, 2011; Jolly, 2008; Sternberg, 2008). Admittedly, the perception of intelligence is a vital foundational concept upon which every child's educational journey begins. However, Millar, Dahl, and Kauffman (2011) contended as follows:

While human potential is universal, opportunity is not. Giving students the opportunity to achieve their potential is our greatest legacy as teachers. It is time to teach creative skills along with basic knowledge. Creative skills will give our students the edge they need to survive and thrive, now and in the future. (p. 15)

Gardner (2011) introduced the concept that each person is born with eight different intelligences in his book entitled *Frames of Mind*. He referred to this concept as

the theory of multiple intelligences. Gardner discussed the possibility of a ninth intelligence, the existential intelligence, although he was reluctant to officially add it to the others (Gardner, 2006b).

In keeping with Gardner's perception of intelligence, if students were viewed as unique human beings, as having multiple ways of knowing or being smart, rather than as cookie-cutter children, all viewed the same, teachers would teach differently and students would learn differently (Ozgen, Tataroglu, & Aikan, 2011; Saban, 2009). In such a reality, children would be valued for their unique gifts and talents and how they contribute to society. Such a contribution is one of Gardner's (2011) definitions of intelligence.

This basic change in perception of students could be the difference between success and failure for many students who do not fit into the mold of the industrial model of education (i.e., the left-brain, verbal-linguistic, logical-mathematical perception of intelligence) that has been the mainstay of the American education system for centuries (Christodoulou, 2009; Gardner, 2006a). Because Tal (2010) defined classroom management as "the ability of the teacher to lead the class—both children and staff—toward achieving the socioemotional welfare and learning of the students" (p. 144) and then added that "embedded in the definition is a moral orientation—the pursuit of well-being and learning opportunities for every child" (p. 144), a direct link can be made between behavior in the classroom and learning opportunities.

The private preschool involved in the study was located in the southeastern United States. The director at the preschool involved in this study reported concern regarding a lack of cohesive instructional strategies and techniques used by all the teachers, making it difficult to speak passionately about the school, in that regard, when

marketing the school to potential parents. She also reported feeling as though this lack of continuity in instructional practices contributed to behavior issues in the classrooms and hindered a unified spirit among the faculty and staff. The director (personal communication, April 12, 2014) believed it to be imperative to involve the teachers and staff in a professional-development program that they all could buy into, in an effort to unify the staff, enhance the instructional and learning processes, construct a framework within which to facilitate classroom management and, ultimately, positively affect enrollment.

Classroom management represented a key component to the study's process because, if children were not behaving in the classroom, they were not learning. Many of the behaviors reported by the teachers to the director involved distraction, disengagement, or boredom. These are typical of misbehaviors documented in preschool classrooms. Regarding such behaviors, Armstrong (2009) stated, "Although multiple-intelligence theory has no magical answer to their problems, it can provide a context for looking at a range of discipline systems that have proven effective with difficult behaviors" (p. 118). Armstrong also stressed the importance of realizing that discipline must be in line with various intelligences when he stated, "Naturally, multiple-intelligence theory suggests that no one discipline approach is best for all kids. In fact, the theory suggests that teachers may need to match different discipline approaches to different kinds of learners" (p. 118).

Armstrong (2009) posited that using a multiple-intelligence instructional approach has the potential to "greatly affect students' behavior in the classroom simply by creating an environment where individual needs are recognized and attended to throughout the school day. Students are less likely to be confused, frustrated, or stressed out in such an

environment” (p. 120). Creating such an environment affords the teacher a greater opportunity to achieve desired outcomes, as students have the potential to remain on task. With this perspective in mind, by keeping behaviors in check, teachers and students have a much better opportunity for success in the classroom (Armstrong, 2009).

Dr. Thomas Hoerr, author of *Celebrating Every Learner: Activities and Strategies for Creating a Multiple Intelligences Classroom*, and the Head of School at New City School in St. Louis, Missouri, one of the oldest and most successful multiple-intelligence schools in the United States, shared the following with the researcher (personal communication, March 20, 2014):

My teachers would agree that discipline problems are minimized when using multiple intelligences. That makes sense! After all, many discipline problems arise because students are either frustrated or bored. While multiple-intelligence theory is not a panacea, it increases the likelihood that kids will succeed.

In referencing multiple intelligences in teaching and learning, McFarlane (2011) stated, “Learning is generally defined as a permanent change in behavior resulting from experience and nothing best facilitates the development of this experience than ideas rooted in different modes that match individual preferences and abilities” (p. 11).

**Deficiencies in the evidence.** Although a great deal of information was readily available regarding multiple intelligences, as well as classroom management, instructional strategies, and cohesive curriculum techniques, there was little information available as to how one affects the other. Additionally, no hard data existed to reflect a definitive correlation between teaching strategies and techniques that incorporate multiple intelligences and enhanced instruction, unified relations, and improvement in behaviors in the classroom. The only information available involved teacher testimonials, as well as the continued growth of effective multiple-intelligences teaching and learning

throughout the educational community (McFarlane, 2011).

**Audience.** Those who will benefit from this study are teachers and administrators. The results of this study will offer insight into whether professional-development training in multiple intelligences for teachers can have an impact on teachers' instructional strategies. Additionally, this study has the potential to eventually benefit students should the results show that the impact of multiple-intelligence training on instructional strategies is a positive one.

### **Definition of Terms**

For the purpose of this applied dissertation, the following terms are defined.

**Classroom management.** This term refers to the method used by a teacher to produce an environment that either is or is not conducive to learning.

**Multiple intelligences (MI).** This term refers to the eight specific pathways of learning identified by Howard Gardner. Gardner (1983) first named the seven intelligences in his book entitled *Frames of Mind* to include logical-mathematical, visual-spatial, musical-rhythmic, bodily-kinesthetic, verbal-linguistic, interpersonal, and intrapersonal. Later, he added the naturalistic intelligence. Gardner's contention was that traditional educational settings limit instruction to logical-mathematical and verbal-linguistic approaches to teaching and learning, which causes a great number of children to miss out on the opportunity to reach their full potential.

**Professional-development program.** This term refers to a set of training sessions designed to advance the knowledge and skills of the teachers and staff members who participate.

### **Purpose of the Study**

The purpose of this study was to determine the effects of training in Howard

Gardner's MI theory on preschool teachers' instructional strategies. Additionally, the study examined the effects of Gardner's theory on teacher attitudes, classroom management, and the unification of staff. This study took place in a private preschool that served approximately 52 children and employed 10 teachers and one director. The student population at the school was made up of 36 Caucasian, six African American, five Hispanic, and five classified as being from other racial or ethnic groups. The entire staff population included 10 Caucasians and two African Americans. The teachers' highest level of education was varied: Two had earned high school diplomas, five had earned a Child Development Associate credential, two had earned associate's degrees, and one had earned a bachelor's degree. The study involved the five lead teachers: one from each of the infant, toddler, 2-year-old, 3-year-old, and 4-year-old classes.

## Chapter 2: Literature Review

### Introduction

The MI theory suggests that it is more authentic to define a person's intelligence as several cognitive functions, working together, rather than as one general intelligence (Gardner, 1983, 2011). Holding (2009) referred to Gardner's theory as a "paradigm shift in education" (p. 193). This chapter reviews the literature as it relates to the realm of this study and the specifics therein. The first section explains the theory of multiple intelligences as it was introduced by Dr. Howard Gardner in 1983. The second section focuses on the benefits of teaching and learning using the theory of MI. The third section examines the need for making the MI theory part of the standard policy in preschool education and the theoretical basis for doing so.

The fourth section highlights improvement in teaching and learning as a result of a coordinated approach to instructional practices and classroom management. Subsequent sections discuss classroom management and various techniques and strategies that have and have not been successful, as well as various behaviors in children within the classroom setting that have initiated professional development geared toward improving classroom management for preschool teachers, including training in Gardner's MI theory. The final section includes the research questions that guided this study.

### The Theory of Multiple Intelligences

In 1983, Gardner challenged the traditional perception of intelligence in his book entitled *Frames of Mind*. Gardner (2011) later identified eight separate intelligences, each with a specified geographical location in the brain, with which he believed all humans to be born. Whereas traditional IQ tests are designed to measure one's level of intelligence, Gardner (2006b) explained that IQ testing is limited to measuring linguistic and logical

abilities, omitting all other intelligences, as well as virtues and morals. Gardner's position was that of a global perspective, seeing many and varying cultures all over the world, believing that the world continues to change dramatically. From this perspective, he wrote, "An intelligence entails the ability to solve problems or fashion products that are of consequence in a particular cultural setting or community" (Gardner, 2006b, p. 6). He saw his view as a consideration of the whole child, rather than simply a portion of the child, in relation to teaching, learning, assessing, and analyzing children as they grow and develop (Gardner, 2011).

Moran, Kornhaber, and Gardner (2006) likened a child's gifts and abilities, or intelligences, to building blocks. If all the blocks are the same, the child is very limited in what he or she can build. Creativity is stifled. However, if there are a variety of shapes, sizes, and colors of blocks available, there is no end to the child's imagination in creating buildings, communities, and even entire cities. Likewise, the multiple intelligences work together to enhance the function of each intelligence and the overall capabilities of the brain. A clear illustration offered by Moran et al. is that of an internal orchestra:

Just as the sounds of string, woodwind, and percussion instruments combine to create a symphony, the different intelligences intermix within a student to yield meaningful scholastic achievement or other accomplishments. And as in an orchestra, one intelligence (instrument) in an individual can interfere with others, compensate for others, or enhance others.

*Interference.* Intelligences may not always work in harmony; sometimes they create discord. For example, even a student who has good social skills (strong interpersonal intelligence), may have trouble making friends if she cannot talk with others easily because she has weak linguistic intelligence. Another student who loves to read and receives frequent praise in English class may sit in the back row and bury her head in a novel during math class, where she feels less confident. Thus, her linguistic strength is a bottleneck for the development of her logical-mathematical intelligence. A third student's weakness in intrapersonal intelligence, which makes it difficult for him to regulate his moods or thoughts, may prevent him from completing his math homework consistently and thus mask his strong logical-mathematical intelligence.



*Compensation.* Sometimes one intelligence compensates for another. A student may give great class presentations because he can effectively use his body posture and gestures even though his sentence structure is somewhat convoluted. That is, his bodily-kinesthetic intelligence compensates for his linguistic limitations. (We can think of more than one U.S. president who fits this profile.) Or a student may earn a high mark on a paper for writing with a powerful rhetorical voice, even though her argument is not quite solid: Her linguistic intelligence compensates for her logical-mathematical limitations.

*Enhancement.* Finally, one intelligence may jump-start another. Strong spatial intelligence may improve a student's ability to conceptualize a mathematical concept or problem. This was certainly the case with Einstein. Strong musical intelligence may stimulate interest and playfulness in writing poetry. Understanding how intelligences can catalyze one another may help students—and teachers—make decisions about how to deploy the intellectual resources they have at their disposal. (p. 23)

Perceiving every child as intelligent, possessing multiple intelligences, and working to develop each of those intelligences allows all children to be labeled as intelligent, fortifying their sense of self-worth and giving them the best opportunity to work toward their full potential (Schmidt, 2001).

### **The Benefits of Multiple-Intelligences Teaching and Learning**

McFarlane (2011) presented an examination of the theory of multiple intelligences:

It is the most viable and effective platform for 21st-century educational and instructional methodologies based on the understanding of the value of diversity in today's classrooms and educational institutions, the unique qualities and characteristics of individual learners, the opportunities that arise from applying the ideas of multiple intelligences, the need for flexibility and adaptation in a global society, and the increasing demand of accountability at all levels of education. (p. 5)

He insisted that the best way for teachers to meet accountability demands was to “understand and accept the power and potential of multiple intelligences to change the ways in which we think, teach, and learn” (McFarlane, 2011, p. 11). As outlined by McFarlane, teaching and learning, using the theory of multiple intelligences, benefits

both the teachers and the students because it addresses diversity in a global sense.

As classrooms become more diverse, both culturally and in terms of learning styles, modalities, or intelligences, the theory of multiple intelligence offers the flexibility for individuality that is needed to meet students where they are and take them to their full potential. The book in which Gardner introduced his theory of multiple intelligences was named one of the 100 most influential education books of the 20th century by *Education Week* (Armstrong, 2003). Numerous scholars have agreed that the theory has benefited the field of education and has the potential to continue to impact education in a profound way (Armstrong, 2003; McFarlane, 2011).

Yenice and Aktamis (2010) stated that one way education can be impacted by Gardner's theory is the classroom environment: "If daily plans and classroom activities are arranged by taking into consideration of (according to) eight types of intelligence, many problems about learning (inattentiveness, unwanted behaviours, alienation of a lesson, thinking of being unsuccessful) may disappear" (p. 100). As noted by Hoerr (2010), when discussing the importance of teaching children about their bodily-kinesthetic intelligence and what are appropriate and inappropriate behaviors, "Students don't need to be shown how to move; they just need to be allowed to do so" (p. 80). Therefore, according to Hoerr, including movement in lesson plans may very well be all it would take to curb unwanted behaviors and channel them into desired actions for children whose dominant intelligence is bodily-kinesthetic when, all the while, they are actively engaged in learning.

### **Multiple Intelligences in Preschool Education**

Preschool education has been shown to be a valuable asset in the lives of young children. One benefit of a preschool education is to help prepare young children for entry

into kindergarten (Hughes, 2010; Welsh, Nix, Blair, Bierman, & Nelson, 2010; Zhai, Brooks-Gunn, & Waldfogel, 2011). Head Start is one preschool program that has produced growth in learning behaviors in the children it serves (Dominguez, Vitiello, Maier, & Greenfield, 2010). These learning behaviors are defined as “behaviors, skills, dispositions, and attitudes that describe the way in which children approach or react to learning situations” (Dominguez et al., 2010, p. 30). Teachers are very familiar with the importance of these behaviors in rendering a successful early school experience, sometimes more so than that of academic skills. Such successes as the Head Start initiative have paved the way for funding for early education, especially for low-income families and children who may be at risk academically (Barnett, Hustedt, Friedman, Boyd, & Ainsworth, 2007).

Yet, there is a continued focus on high-stakes, on-demand testing in the upper grades that limits the curriculum, the instructional process, and classroom activities in the lower grades, as teachers attempt to prepare students for testing. As a result, the children’s learning and development are also limited (Freeman & Brown, 2008). A child’s reactions to learning, as well as his attitudes and behaviors, are valuable indicators of the child’s social and other skills for both teachers and parents. Scheduled classroom time for observing such behaviors is vital for authentic assessment and would prove to be insightful if made part of policy (Nitecki & Chung, 2013).

DellaMattera (2010) suggested a standardization of preschool policy, defining how children learn best, as a basic framework for all policy guidelines. Should those guidelines embrace Howard Gardner’s theory of multiple intelligences (Gardner, 2011), such policy guidelines would provide children with an opportunity for growth and development in their dominant intelligence, or the area in which they learn best (Groff,

2013). When teachers deliberately plan to stimulate all eight intelligences, every student has the opportunity for success. Every student has the opportunity to feel smart as he or she is engaged in learning. If teachers teach all of their students the same and do not take into account the children's multiple intelligences as they present the lessons, they do not allow the children to develop to their full potential, which limits their growth and development (Eberle, 2011). Every time teachers present a traditional lesson that is aimed only at the logical-mathematical or verbal-linguistic student, they are leaving out the remainder of the students who are gifted in all other areas, likely causing them to feel lesser than or lost (Armstrong, 2009).

As observed by Chen and McNamee (2011), when left to choose, children are very transparent in revealing themselves, as one child may approach the building blocks enthusiastically and persistently, yet another may choose a floor puzzle with a specific goal-mindedness intent upon completion. Simple, passive observation of these choices gives the teacher information about both children that he or she would not have if the children had not been given the time and opportunity to make choices and had the teacher not taken the time for passive observation. These observations can equip the teacher with all that is needed to fortify the lesson plans with material that will stimulate every child in the classroom, so no one is left out and no one feels lesser than or lost. Palladino (2009) even used Gardner's theory, along with that of Aristotle, in her classes to teach her students about character development and analysis.

In order for young children to get a jump start in their educational process, a strong foundation must be constructed in the early childhood years upon which to continue to build their learning through high school (Lasser & Fite, 2011). There are rapidly changing U.S. demographics that, because of cultural and language differences,

only add further challenges to the education system (Vargas & Conlon, 2011). Beginning the educational process for all children by seeing them as individuals and working through and with their dominant intelligences will afford them the best opportunity to reach their full potential for growth and development (Laughlin & Foley, 2012).

Goldstein and Baumi (2012) noted that the three most important strategies needed to work within the parameters of existing standards, yet make decisions that will benefit young learners, are to (a) acquire detailed and thorough knowledge of policies and expectations, (b) consider the required materials to be a starting point, and (c) showcase children's engagement in substantive learning. According to Bas and Beyhan (2010), it is the latter strategy that becomes more authentic when a teacher begins to view students as unique individuals and tailors teaching to specific and individual characteristics. It is at that point when students are able to grow and develop with more success and with a higher level of motivation.

Connell (2009) found that most teachers teach using their dominant intelligence or tandem dominant intelligence, thus engaging only those students with whom they have that in common. Connell's suggestion was to try to include all of the multiple intelligences throughout the course of the day, rather than to try to work all eight intelligences into each individual lesson plan. She viewed teaching and learning, using Gardner's theory of multiple intelligences, as a framework for teachers as they work with strategies such as differentiated instruction and brain-based learning. The theory of multiple intelligences is ideal for assisting teachers in viewing their students as unique individuals, gifted with unique talents, thus allowing teachers to design lesson plans and classroom activities that can focus on their students' individual strengths and weaknesses (Armstrong, 2009).

## Standards for Early Childhood Education

For children to begin their educational journey on the firm foundation of a solid sense of self-worth and with the understanding that they were born with multiple intelligences, or many ways of being smart, is to set their feet upon unshakeable ground on their path to academic success (Armstrong, 2009). Their very first teachers are their guides for this journey of self-discovery and understanding. Therefore, their very first teachers, their early childhood teachers, must be thoroughly trained so that they will be expertly equipped in order to skillfully handle the responsibilities afforded them (Enciso, Katz, Kiefer, Price-Dennis, & Wilson, 2010).

Currently, the standards to which early childhood teachers are held for training were developed by the National Association for the Education of Young Children (NAEYC, 2001). There is no doubt that accreditation with the NAEYC benefits early childhood programs overall, as well as benefiting individual teachers with what they can bring to their classrooms (Jacobson, 2009). The first standards, *Early Childhood Teacher Education Guidelines for Four- and Five-Year Programs*, were approved in 1981 by the NAEYC Governing Board and published the next year (Lutton, 2011). Subsequent standards were published in 1984, *Guidelines for Early Childhood Education Programs in Associate Degree Granting Institutions*; in 1986, *Developmentally Appropriate Practice in Early Childhood Programs Serving Children From Birth Through Age 8*; and in 1988, *Developmentally Appropriate Practice in the Primary Grades Serving 5-Through 8-Year-Olds*.

In 1990, a position statement entitled *Guidelines for Appropriate Curriculum Content and Assessment in Programs Serving Children Ages 3 through 8* was adopted, and, in 1992, it was published. The 1980s proved to strengthen the NAEYC's foothold in

the early childhood education community as they became involved in the processes of accreditation, professional recognition, and teacher education (NAEYC, 2001). Revisions to the original 1982 teacher-education guidelines took place in 1996, 2001, and 2009. They were orchestrated by professionals from various early childhood organizations, advisory associations, and specialty groups. Revisions in standards were made according to research or changes in the field, all focused on keeping the bar high (Lutton, 2011).

Although the revisions, as late as 2009, covered such vital subject matter as providing services for children with disabilities, integrating diversity into every standard, and the possibility of requiring college degrees for early childhood teachers, they still fall short. There is no mention of turning attention to the individuality of the children in early care and the advantages of teaching them as the unique learners they are in order to provide them a better opportunity to reach their full potential. It is imperative that the restructuring process in schools begins with the youngest children, as this new way of teaching and learning becomes a way of life for them (Lasser & Fite, 2011). Teaching for multiple intelligences comes through the curriculum. Teaching with multiple intelligences comes through instruction. Teaching about multiple intelligences comes through learning (Campbell, 2008; Pool, Dittrich, & Pool, 2011).

### **Improvement Due to Coordinated Approaches**

In reviewing the literature, it was found that many schools have school-improvement plans in place (Dunaway, Kim, & Szad, 2012). These plans present an effective forum through which to align curriculum within specific disciplines, among grade levels, known as horizontal alignment, and through entire schools, known as vertical alignment.

A good example of vertical alignment is an effort made by the science education

community. In response to the demographic changes in America's schools, the American Association for the Advancement of Science designed Project 2061, an effort to transform science education by 2061, which is the year Halley's Comet returns. The science report to accompany the project, and the accompanying standards, defined the scientifically literate person to be "someone who has a broad and functional understanding of science and the natural world; is aware of the interdependence of mathematics, technology, and science; has a capacity of scientific thinking; and understands the coherence of science and society" (Ash & Jackson, 2012, p. 724). Ash and Jackson (2012) reiterated the importance of "purposeful planning" (p. 726) among teachers to ensure success. The authors also discussed the importance of the teachers working as grade-level teams and using the vertically aligned science curriculum for kindergarten through Grade 12. Because the effort was a school-wide effort, taking into account the change in demographics, the results also had an impact on more than science.

Ash and Jackson (2012) reported, "As a result of the project, teachers promoted English-language development during science instruction by increasing the focus on content vocabulary and implementing interactive science word walls" (p. 738). The cohesive approach to instruction allowed for discussion and deliberate planning to the benefit of the students. Liu (2013) conducted a study using a collaborative professional-development program to train teachers to integrate technology into the classroom, referring to the collaborative approach as a "worthy focus" (p. 59), and concluded, "The collaborative teacher professional development can benefit the thoughts and practices of teachers that are related to meaningful use of technology" (p. 66).

Likewise, this need for a cohesive approach to instruction has caused schools to become more invested in professional development and mentoring in order to ensure



success in training and support (Stock & Duncan, 2010). Wasik (2010) contended that it is not so much the content but the coordinated training of the teachers in the same strategies and techniques that proves successful in the preschool classroom. In reference to the training called Exceptional Coaching for Early Language and Literacy, Wasik stated, “Without this training, it is likely that implementation of even the highest quality curricula will vary across early childhood teachers, undermining efforts to build children’s language skills at the very time when interventions could have the strongest long-term effects” (p. 621). Research supports a successful means to improvement in classroom instruction to be faculty professional development, specifically experiential learning (Estepp, Roberts, & Carter, 2012).

DuFour (2011) heralded the success of professional learning communities in perceiving teaching as a profession and teachers as professionals, much like doctors, pilots, lawyers, engineers, and architects, all professions that require a certain amount of collaboration. He argued that freedom in the classroom does not equate to autonomy or what he termed as a “tradition of isolation” (p. 58). DuFour made his point by drawing the following analogy regarding collaboration:

When professional airline pilots prepare to take off, they coordinate their work with air traffic control. If the tower informs a pilot that he or she is to move to runway 24L and be fourth in line for takeoff, the pilot does not, as a professional, have the autonomy to declare, “I prefer runway 25 and I refuse to wait.” He or she is not merely expected, but is actually required to work interdependently with others to achieve the common goal of a safe takeoff. (p. 58)

DuFour (2011) contended that collaboration “is considered essential to success in most professions” (p. 58). Likewise, in teaching, the time spent with other teachers in collaborating, planning, analyzing, evaluating, and discussing should be considered necessary for success. Additionally, Rhoads (2011) found that empowering teachers in

the decision-making process, as well as allowing them to take part in creating a common vision, proved instrumental in the effectiveness of the professional learning community. Research supports the concept of professional learning communities, from the perspective of student learning, as was noted in a study by Odden and Archibald (2009) showing that student achievement doubled. The authors stated, “It should be of no surprise that one result of the multiplicity of activities was a collaborative, professional school culture, what is commonly called a ‘professional learning community’ today” (Odden & Archibald, 2009, p. 78). Likewise, DuFour and Mattos (2013) made a case for professional learning communities and their effect on student achievement in the following statement:

Of course, teaching and learning are not divorced from each other. The key to improved student learning is to ensure more good teaching in more classrooms more of the time. The most powerful strategy for improving both teaching and learning, however, is not by micromanaging instruction but by creating the collaborative culture and collective responsibility of a professional learning community. (p. 37)

### **Development and Behavior**

Children who are developing typically may, at times, display behaviors that can be termed as problem behaviors, such as throwing tantrums, displaying aggression, acting stubborn, interrupting, or showing extreme emotions (Greer et al., 2013). Greer et al. (2013) pointed out that these behaviors are usually passing and will disappear. It is only when they persist that they may “interfere with the development of appropriate social and communicative behavior” (Greer et al., 2013, p. 289); then, it is important to identify the behaviors early in order to assess them and seek out effective treatment to assure success in future development.

Bryan, Burstein, Chao, and Ergul (2006) discussed the relationship between

language development and problem behavior reporting, “An estimated forty to seventy percent of students with behavior disorders have been found to have concurrent language disorders” (p. 8), highlighting misbehavior as a possible symptom of delayed language development and a sign for parents and teachers to seek early intervention if a dual pattern is noted. The development of social skills has been linked to academic skills and behavior issues, as well as school relationships (January, Casey, & Paulson, 2011). January et al. (2011) stated that, as social skills are strengthened, so is academic performance, behavior, and relationships. However, the authors cautioned, “Social withdrawal, extreme feelings of isolation, and rejection can be precursors to aggressive and violent behavior” (January et al., 2011, p. 242) and continued, “Poor social skills also increase vulnerability to mental health problems like depression, loneliness, and social anxiety” (January et al., 2011, p. 242).

Because of the importance of developing strong social skills, many school systems have implemented interventions for teachers to use that are designed to help improve social skills, ranging from whole-school programs to more individualized, small-group programs. January et al. (2011) emphasized the need for involvement from more than just teachers to realize improvement in social skill development. The authors stated, “Yet, if the social and emotional needs of children are going to be addressed more fully, the entire environment, home, school, and community must work together to create a supportive atmosphere that emphasizes the importance of social skills” (January et al., 2011, p. 253).

Certainly, the support of an entire community helps to relieve stress from a single teacher. However, when a teacher feels as though he or she is left alone in a classroom with his or her behavior problems, the stress can become insurmountable. Gebbie,

Ceglowski, Taylor, and Miels (2012) reported that teachers who admit to being stressed “spend more than 20% of time in negative interactions and only 5% of time in positive interactions with children who had challenging behaviors” (p. 35). Their report indicated that over 10% of preschool teachers in state-funded prekindergarten programs in the United States expelled a preschooler over the course of the 2003-2004 school year. This reported rate topped the recorded expulsion rate for students in kindergarten through Grade 12 by over three times the reported expulsion rate (Gebbie et al., 2012). To be expelled means the child is not allowed to return to the school. These researchers made a direct correlation between the teachers’ stress level and the expulsion rate, “even when class size and child age were controlled” (Gebbie et al., 2012, p. 35).

Gebbie et al. (2012) reported that children with disabilities can be as much as three times more likely to develop behavior problems than children who are developing typically. The authors defined challenging behavior as any behavior that disrupts the learning process or keeps the child from interacting socially with peers or adults. These behaviors in preschool are known to be associated with “school dropout, gang membership, adult incarceration, and early death” (Gebbie et al., 2012, p. 36). The researchers predicted that, if a pattern of these challenging behaviors is not altered before the third grade, they can become habitual and then would require more money and effort to treat (Gebbie et al., 2012).

### **Classroom Management**

Monroe, Blackwell, and Pepper (2010) noted that approximately 50% of America’s new teachers make the decision to leave their classrooms within the first 5 years of their careers. Their research showed that classroom management is the number one reason that many of the teachers in this country give for leaving the profession. First-

year teachers are finding great discrepancies between what they are being taught in teacher-education programs, on the college level, and what they find in the field, when assigned their first teaching position. Monroe et al. stated the following:

This inconsistency is challenging for many preservice teachers as they struggle with creating their own teacher identities. It is often difficult for preservice teachers to practice the management strategies taught in their university courses when the structure of their field experience classroom, the style of their cooperating teacher, and/or the requirements and restrictions from K-12 school administrators limit the types of strategies they are able to implement and practice in the field. This leaves the first year of teaching as the only true classroom management training ground for these novice teachers. (p. 1)

Monroe et al. (2010) suggested that college students should be given an opportunity to design and implement their own classroom-management plans prior to graduating in order to fully understand what is expected of them when they are hired as classroom teachers. By providing “ample opportunities for guided practice and feedback in organizational procedures and instructional strategies, as well as implementing both preventive and corrective behavior management strategies” (Monroe et al., 2010, p. 2), students will enter the teaching field better prepared to deal with all behaviors in the classroom.

Indeed, learning to deal with classroom behaviors is a vital skill to master when entering the teaching profession. In addition to the direct effect on the teacher and his or her success in the teaching profession, classroom behavior and how it is or is not managed directly affects learning outcomes for students (Bulotsky-Shearer, Fernandez, Dominguez, & Rouse, 2011; Monroe et al., 2010). Bulotsky-Shearer et al. (2011) reported specifically about preschool-aged students who were involved in a study that they conducted, stating, “Early problem behavior in structured learning activities consistently predicted lower academic outcomes (early reading and mathematics ability)

as well as lower motivation, attention, and persistence in academically focused tasks” (p. 39). Savas (2012) stated, “Classroom management is one of the most important factors in providing education to students” (p. 3099). Additionally, Savas explained that effective classroom management would “diminish and avert classroom disruptive behavior and improve academic achievement and school willingness” (p. 3100).

Between 10% and 20% of children at the preschool level present with behaviors that are challenging for an early childhood teacher, and the number is even higher for children with developmental delays or who come from low-income families (Carter & Van Norman, 2010). Preschool teachers contend that they are most concerned about disruptive behaviors in their classrooms, according to the study by Carter and Van Norman (2010). The authors reported, “Fewer than 10% of young children who show early signs of problem behavior receive services” (Carter & Van Norman, 2010, p. 279). Reynolds-Keefer (2011) spoke to specific noncompliant and defiant behaviors and their effect on learning, as well as positive social interactions. The author also noted an increase in referrals and the need for special services with such behaviors. Other effects of noncompliant and defiant behaviors noted by this author included discouragement in teachers and a reduction in positive interactions with the students’ families (Reynolds-Keefer, 2011).

Although Vygotsky (1997) viewed noncompliant behavior as a typical developmental transitional phase, because it is a particularly dramatic phase for children around the age of 3, Reynolds-Keefer (2011) contended that classroom management is particularly challenging for early childhood teachers. The most observed behaviors classified as defiance in the Reynolds-Keefer study were stubbornness, protest, and obstinacy. Gartrell (2012) reported that preschool expulsions outnumber those in public

school classrooms three to one because of challenging behaviors. The author also noted that preschool boys were over four times more likely to be expelled than girls, blaming, in part, the lack of male teachers at the preschool level. Johnson (2010) also referred to “a shortage of male teachers at all levels of public education” (p. 18), reporting that “2.2% of preschool and kindergarten teachers and 5% of child-care workers are men” (p. 18).

### **Gender Disparity**

Gartrell (2012) contended that male teachers were more intuitive regarding “developmental characteristics, activity levels, curriculum adaptations, and patterns of conflict” (p. 80) with respect to boys than their female counterparts. The author pointed to another gender gap at the preschool level that discriminated against boys as the emphasis being placed on readiness skills in order to prepare children for extensive testing in kindergarten through Grade 12. Because boys are more geared toward gross motor activities and active, hands-on learning in the preschool years, in particular, they do not typically excel in “the sensory integration and task-persistence skills” (Gartrell, 2012, p. 80) that are needed for much of the academic achievement work being focused on in the current high-stakes testing world. As teachers spend time on seat work and academics, preschool boys are often perceived as underachievers and behavior problems because their strengths are overlooked due to gross motor activities and hands-on learning being omitted from the lesson plans (Gartrell, 2012).

Altay and Güre (2012) concluded, “Children acquire gender-role stereotypes at an early age and that early gender stereotypes include ideas about appropriate personality and behavior” (p. 2715), signaling to boys that it is acceptable for them to engage in more aggressive behavior than their female classmates. These authors argued that boys are socialized with the expectation “to be more physically active, dominant, and aggressive

than girls, whereas girls are expected to be more helpful than boys” (Altay & Güre, 2012, p. 2715).

Similarly, Piechura-Couture, Heins, and Tichenor (2013) reported that, in some cases, boys are placed into special education programs two to three times as many as girls. Most of these classifications are in categories defined as judgmental, having to do with behavioral issues. Reasons cited were that (a) boys are somehow genetically subject to disorders that cause the problems, (b) there are stereotypes in place in society that boys have higher expectations than girls, and (c) boys have more energy than girls, which is tolerated outside of school but is discouraged in school (Piechura-Couture et al., 2013). These authors also reported on several significant brain-based gender differences that affect how children learn, which may shed light on why boys are outnumbering girls in being labeled as behavior problems.

For example, there are fundamental differences in how boys and girls see and hear. The retina for boys is wired for tracking movement, whereas girls’ retinas are wired for detail and color variation. Further, girls are born with a more acute sense of hearing, particularly at the higher frequencies used for speech discriminations. In addition, the male and female autonomic nervous systems respond differently to stress. When under stress, the male sympathetic nervous system is engaged, and the fight-and-flight response is activated by the release of adrenaline. This causes an increased hearing rate, vasoconstriction, and dilated pupils, which can trigger violence or confrontation. These boys are prepared to fight or fly. Although the sympathetic and parasympathetic nervous systems are present in both males and females, girls are more influenced by the parasympathetic nervous system, which releases a completely different set of chemicals. The primary neurotransmitter in females is acetylcholine, which causes mental slowing



and a feeling of dizziness under stressful situations (Piechura-Couture et al., 2013).

These developmental and biological differences in brain function in boys and girls help to explain why boys may look as though they are not listening, given the hearing differences. Also, regarding how boys and girls see differently, because “male eyes are wired for tracking” (Piechura-Couture et al., 2013, p. 237), boys’ attention in the classroom should be on the teacher, which would be the largest target; however, when boys are distracted by any movement elsewhere in the room, their attention is easily pulled away from the teacher. Because of their easy distractibility due to the difference in how their eyes are wired, it is typical for boys to be labeled with attention deficit hyperactivity disorder or as a behavior problem (Piechura-Couture et al., 2013). Piechura-Couture et al. (2013) found advantages to single-gender classrooms and made the following conclusions:

To positively impact behavioral and academic outcomes, teachers must carefully shape instruction to meet the needs of their students. Single-gender classrooms in which teachers have boy-friendly lessons that allow for greater physical movement, elevated noise levels, and direct teacher talk have proven successful for many students. (p. 241)

### **Strategies and Techniques**

Gloeckler and Cassell (2012) introduced the need for a paradigm shift in self-regulation expectations in the early childhood classroom wherein toddlers are given an opportunity to participate in problem solving as it relates to social growth. These authors suggested that early childhood teachers turn from solving problems for toddlers to solving problems with toddlers in an effort to equip toddlers with “authentic in-the-moment opportunities for learning language, cooperation, perspective taking, and empathy” (Gloeckler & Cassell, 2012, p. 254). This foundational understanding for toddlers serves them well as they continue into their preschool and elementary years,

armed with the vocabulary and strategic usage for success in various social situations (Gloeckler & Cassell, 2012).

In a study specific to Head Start programs, Rikoon, McDermott, and Fantuzzo (2012) noted “the relationship between early behavior problems and future academic achievement” (p. 274) while speaking to “the vital nature of assessing and supporting positive learning behaviors” (p. 274). These authors pointed out the importance of providing a smooth transition between preschool and elementary school. In fact, they termed it a “critical transition from prekindergarten to more formal schooling” (Rikoon et al., 2012, p. 274) and encouraged continued research to allow “the measurement of growth trajectories in learning behaviors as these students progress through the first years of their primary education” (Rikoon et al., 2012, p. 291).

Positive reinforcement is a strategy emphasized by Mowat (2011), who stated that the positive comments made to children should be specific in their focus. The author reflected on her study as follows:

When children were given praise which highlighted their intelligence rather than the effort invested in the task, they were more likely than children who had been given effort praise to choose performance-goal (focusing upon the end-result) rather than learning-goal tasks subsequently. (Mowat, 2011, p. 228)

This explains her reasoning for incorporating Gardner’s theory of multiple intelligences, in particular the intrapersonal and interpersonal intelligences, into lessons in order to help children understand their own feelings and the feelings of others (Mowat, 2011). She argued that behaviorist theories of learning that promote positive reinforcement or praise as the sole answer to misbehavior in the classroom “are insufficient if we are to effect lasting change in young people” (Mowat, 2011, p. 227).

How teachers react to misbehavior may curb behavior issues on a short-term

basis; however, if the teachers' reactions are not appropriate, the long-term effects may only make the behavior issues worse (Levine & Ducharme, 2013). Still, positive interactions between teachers and students, when working to correct classroom behaviors, have proven to be more successful than negative interactions (Levine & Ducharme, 2013). The study conducted by Levine and Ducharme (2013) was specific to play interaction between teachers and students upon observing misbehavior. The results were overwhelmingly positive in that the children's compliance improved after each play session. However, Levine and Ducharme did not credit the compliance specifically to play; instead, they considered that the "praise, warmth, and responsiveness" (p. 60) received from the teachers contributed to the children's feelings of attention from the teachers. Nonetheless, the positive responses from the teachers elicited positive responses from the children and, subsequently, helped to improve the overall learning environment in the classrooms.

Likewise, Carter and Van Norman (2010) were proponents of a proactive prevention program to improve classroom behavior. The authors reported that "fewer than 10% of young children who show early signs of problem behavior receive services" (Carter & Van Norman, 2010, p. 279), subjecting these little ones as they grow older to the likelihood of substance abuse, premature death, mental illness, divorce, and unemployment. Their study involved consultation for teachers with a mental health professional, the result showing a decrease in children's expulsion rates and an increase in self-efficacy and competence. The positive-behavior support study allowed teachers an opportunity for immediate feedback that improved implementation, and "participants agreed that the consultation had a positive social impact on the desired classroom outcomes" (Carter & Van Norman, 2010, p. 286).

Another strategy implemented in an effort to improve behaviors in a classroom setting was called Promoting Alternative Thinking Strategies (Arda & Ocak, 2012). The study by Arda and Ocak (2012) was conducted to determine to what extent the strategy could affect the social and emotional skill growth and development of the participants, which, in turn, would affect individual behaviors and the overall management of the classrooms. Arda and Ocak explained the program as follows:

It is an early intervention program designed to develop children's awareness and communication regarding their own and others' emotions; teach self-control of arousal and behavior; support peer relations; develop children's problem solving skills by fostering the integration their self-control, affect recognition, and communication skills; and create a positive classroom atmosphere supporting social-emotional learning. (p. 2695)

The program was successful in teaching children problem-solving skills, helping them to learn to think about their own emotions, and reducing behaviors such as aggression and disruption (Arda & Ocak, 2012).

Moffat (2011) also researched aggressive behavior in children and concluded that behavior-specific praise is a successful technique in decreasing unwanted behaviors. The author noted the need for behavior-specific praise rather than general praise because of the effect of the specific focus on the child's response to the praise. Additionally, Moffat stated the importance of the immediacy of the praise after the child has changed his or her unwanted behavior: "The results indicated that the teacher's use of specific praise increased, and the child demonstrated positive changes with an increase in appropriate behaviour and a decrease in aggressive behaviour" (p. 51). Likewise, Fullerton, Conroy, and Correa (2009) reported the positive effect of specific praise on an increase in appropriate behaviors and a decrease in antisocial behaviors in young children, in particular. In addition to creating a more positive learning environment, Moffat (2011)

also noted that using praise statements creates a more positive relationship between the teacher and students.

Allday (2011) posited a strategy for managing misbehavior that focuses on responding rather than reacting to students. The author noted the importance of planning ahead and making known the expectations and class rules in order to leave no doubt in the minds of the students as to how appropriate behavior is defined. Allday also believed that this strategy is particularly important in alleviating teachers' reactions to minor misbehaviors that may escalate into major classroom disruptions because of teachers' inappropriate overreactions. Allday believed that teachers often react negatively to minor misbehavior because they do not have a plan in mind to deal with such behaviors that would trigger an automatic and more positive response. The teacher's goal is to help students learn, but that will not happen if the teacher is not able to maintain an environment conducive to learning. Allday concluded, "Reduction in misbehavior through a set of positive, predetermined responses helps teachers to better manage the classroom and maintain a learning environment designed for success" (p. 297).

Likewise, positive-behavior interventions were supported by Conroy, Sutherland, Vo, Carr, and Ogston (2013), with an emphasis on professional-development training and practice-based coaching for teachers. These researchers confirmed that teachers' negative responses to problematic behavior "can lead to fewer learning opportunities and less engagement in classroom activities, resulting in missed opportunities for learning critical school-readiness skills" (Conroy et al., 2013, p. 2). Conroy et al. noted the vital need for classroom management that is effective for early childhood programs due to the growing numbers of children enrolled in day-care centers and preschool classrooms and given the essential nature of the outcomes. An intervention studied by Conroy et al. was called

Behavioral, Emotional, and Social Training: Competent Learners Achieving School Success. The focus of this intervention is to “enhance and improve teachers’ use of effective instructional practices as a means to prevent and reduce children’s challenging behaviors and increase their engagement” (p. 4).

Still looking at preventive measures in classroom management, but switching gears to the classroom environment, Guardino and Fullerton (2010) highlighted a three-step process toward assessing a classroom environment to see if it is affecting student behaviors. The authors then moved toward implementation of a plan to change the environment to improve unwanted student behaviors. Their steps included observe, modify, and follow-up. In observing, teachers ask themselves the following types of questions: “Are students unable to work without distraction from peers and the environment?” “Are students interrupting the lesson because materials are unorganized and inaccessible?” (Guardino & Fullerton, 2010, p. 10).

Modifications may include actions such as “arranging classroom furniture to define learning areas, improving accessibility and availability of materials, delineating traffic patterns, improving organization of materials” (Guardino & Fullerton, 2010, p. 10). Follow-up consists of teachers self-critiquing and asking themselves if what they have modified is working and, if not, what they need to do to make things work. Also, a teacher may need to engage in additional observations in order to consider additional modifications or a change in existing modifications. The follow-up phase is vital to the three-step process in order to be assured that the entire process is working in changing the environment to improve unwanted student behaviors (Guardino & Fullerton, 2010).

Gartrell (2011) recalled a specific scenario of a child entering a Head Start program and refusing to become engaged in the morning routine in the classroom, which

began with washing his hands and eating breakfast. Rather, the child worked himself into a rage and yelled curse words at the teacher. The only way for the teacher to avoid total disruption to her class was to remove the child, placing him in a corner, until he calmed down. The teacher knew this strategy was not enough to get to the heart of the behavior issue with the young child. She set up a meeting with his mother to discuss his behavior. During that meeting, the mother informed the teacher of some specifics of her living conditions, explaining that she was a single mother who shared a small house with other family members, and, because of excessive noise from others in the house, the young child was not sleeping well at night. Upon hearing this information, the teacher better understood what may be triggering the outbursts in the young child and she changed her routine with him.

Beginning the next morning, when the young child came to school, the teacher would offer him a choice of joining in the activities with the other children or snuggling with her for a few minutes. He chose snuggling with her and would often fall asleep. After a short nap, he would eat breakfast, whereas before he was not eating breakfast at all. The teacher continued offering the young child a choice to snuggle, but gradually he acclimated to the morning routine without feeling a need to snuggle. The stress that he was experiencing at home was being brought to school, which he perceived as another stressful environment without any transition to alleviate his uneasy feelings. The teacher's strategy was to figure out why the child felt the need to exhibit aggression and then prevent his need to be aggressive. It took a great deal of caring, insight, and effort on her part, but, in the end, everyone benefited, certainly the teacher, but most importantly the young child (Gartrell, 2011).

### **Training Teachers in the Theory and Practice of Multiple Intelligences**

Offering professional development for preschool teachers that affords them the tools with which to understand children as unique learners, and thereby teaching those children through their strengths, will equip teachers to be successful in the classroom, which allows their students to be successful as well (Armstrong, 2009). Incorporating Howard Gardner's theory of multiple intelligences into professional development for all teachers is a way to give them the filter of individuality through which to see all children (Baum, Viens, & Slatin, 2005). Adding a requirement for multiple-intelligence training to the standards to which preschool teachers are held would be a useful strategy to help teachers ensure that preschool children receive a firm foundation on which to continue to build their educational success.

Hoerr (2010), Head of School at New City School, a multiple-intelligences school in St. Louis, Missouri, discussed resistance to multiple intelligences by some in the field of psychology. However, he believed that "educators who work in schools recognize its possibilities because they see multiple intelligences in their students" (p. 1). He also spoke (personal communication, March 20, 2014) from his experience in linking multiple intelligences to success in the classroom because of a reduction in behavioral issues:

My teachers would agree that discipline problems are minimized when using multiple intelligences. That makes sense! After all, many discipline problems arise because students are either frustrated or bored. While multiple intelligences is not a panacea, it increases the likelihood that kids will succeed.

Additionally, Hoerr (2010) heralded the importance of continuing education and lifelong learning for teachers by stating, "If children are to learn and grow, their teachers must learn and grow" (p. 3). In researching Gardner's theory of multiple intelligences, Hoerr came to the realization that the goal of educators should be to prepare students for



success in the “real world” (p. 44), not simply to be successful in academia throughout years of schooling. In working to reach that goal, educators must help students to understand their interpersonal and intrapersonal intelligences. Hoerr also made the following comment:

The people who flourish in real life do perform well in traditional academic areas, but they excel because of their ability to understand and work with others and their ability to capitalize on their strengths and compensate for their weaknesses. The ability to get along and work well with others has always been an essential quality for success; with our ever-shrinking world, it will be even more important in the future. Possessing a strong intrapersonal intelligence means that we know our strengths and weaknesses and how we are perceived by others. If we are successful, it is because we are able to find a context in which our strengths come to the fore and our weaknesses are minimized. It is also because we recognize our weaknesses and know how to accommodate them. (p. 44)

For teachers to help their students fully understand the interpersonal and intrapersonal intelligences, they must first understand their own interpersonal and intrapersonal intelligences, and they must be trained to incorporate multiple intelligences into how they interact with one another as faculty and staff as well. For these reasons, Hoerr (2010) prioritized the personal intelligences as the most important. He also viewed the intrapersonal intelligence as “the key, the starting point, because, when the intrapersonal intelligence is dominant, it means that we know our strengths and weaknesses and how we are perceived by others” (p. 44).

Teachers at the early childhood level admit that their instructional practices have not been positively influenced by professional-development programs that involve sitting and listening to a presenter tell them how or what to do to make their classrooms a better place for learning; yet, those are the workshops that continue to be offered to teachers across the country today (Dunst & Raab, 2010). It is encouraging, however, that “in the recent professional-development literature, supervision, mentoring, and coaching have

been discussed as promising alternatives to more traditional, yet questionable effective methods” (Wilson, Dykstra, Watson, Boyd, & Crais, 2012, p. 97). Wilson et al. (2012) cited coaching, in particular, as an effective professional-development training strategy for early childhood teachers, recognizing it as “a more focused, individualized practice with the primary goals of supporting and encouraging adult learners, facilitating reflection, and refining specific skills through a systematic, but flexible, learner-driven process” (p. 98).

The professional-development coaching strategy fit perfectly into a strategic plan to teach the interpersonal and intrapersonal intelligences first in order to help teachers understand themselves and others first before delving into anything other instruction (Hoerr, 2010). Once the teachers have a good understanding of the personal intelligences, the focused and individualized coaching technique works in and through those intelligences to facilitate learning the material content of the specific professional-development program through their dominant intelligence (Armstrong, 2009; Gardner, 2003, 2011).

Coffey (2012) agreed that there is a need for mentoring of new teachers in order to “bridge the gap between pedagogical theory and classroom practice” (p. 95). The author participated in mentoring a former student and realized, as a college professor, how veteran teachers or university faculty members could serve as mentors and truly make a difference in the field of education. Coffey acknowledged the limitations that exist in providing mentors for every novice teacher and offered several realistic suggestions that, although not as comprehensive as a mentor, have the potential to stand in the gap to some degree. One such suggestion is for a university faculty member, who may not have time to work together with one teacher on a full-time basis, to take enough

time to meet with a small group of novice teachers on a regular basis, perhaps monthly, in order to discuss concerns, interests, or helpful ideas.

Another suggestion offered by Coffey (2012) for a university faculty member, who may not have a lot of time but is willing to do something to help, is to host an online blog or discussion forum that caters to novice teachers. A third suggestion is for the university faculty member or veteran teacher to offer to observe in the novice teacher's classroom once per semester and offer helpful hints or answer questions for the teacher about how his or her lesson was received by the students that day. Sometimes, the novice teacher just needs someone with whom to have a conversation so he or she can better realize if he or she is "truly engaging students in meeting our objectives for learning" (p. 96).

### **Research Questions**

The central overarching question that guided this applied dissertation was as follows: What is the impact of professional-development training in multiple intelligences on teachers' instructional strategies? The following supporting questions were established for the qualitative study:

1. Will the professional-development training in multiple intelligences promote a cohesive approach to instruction?
2. What effect will the professional-development training in multiple intelligences have on classroom management?
3. How will staff morale be affected by the professional-development training in multiple intelligences?

## Chapter 3: Methodology

### Aim of the Study

This study explored the effectiveness of professional-development training involving Howard Gardner's MI theory on instructional strategies, teacher attitudes, classroom management, and the unification of staff in a cohesive approach to instruction. This chapter outlines the methodology that was used to conduct the study, as well as details of the instruments that were used to collect and analyze the data. Information is included regarding the participants who were involved in the study and the research design.

### Qualitative Research Approach

The study explored the phenomena of the effect of multiple-intelligences training on teachers both in and out of the classroom. The study was a qualitative method that used a phenomenological approach with a case-study design. A phenomenological approach considers the experiences of the participants as they are lived, viewing the "universal essence of their experiences as a phenomena" (Creswell, 2012, p. 76). This phenomenological case-study research design involved the collection of qualitative data from all those who experienced the phenomena, comparing teachers' instructional strategies, attitudes, and instructional continuity before and after participation in a professional-development program. The data were then used to develop what Creswell termed a "composite description of the essence of the experience" (p. 76) for everyone who participated in the study. The description included not only what the teachers experienced, but also how they experienced it (Moustakas, 1994).

The theoretical model of Gardner's theory of multiple intelligences was utilized in a real-world setting throughout the preschool in an effort to determine its effectiveness as

a collaborative instructional approach. Yin (2014) recommended the case study because it “allows investigators to focus on a ‘case’ and retain a holistic and real-world perspective” (p. 4). The qualitative approach was chosen in order to “take a naturalistic approach to the world (i.e., studying things in their natural setting), while attempting to understand or interpret phenomena in terms of the meaning that people bring to them” (Edmonds & Kennedy, 2010, p. 48).

The intended outcome was to investigate the impact of professional-development training and determine if it resulted in a cohesive mindset among the school staff, regarding teaching strategies, in order to enhance instruction and positively affect student learning, teacher morale, and, eventually, school enrollment. A professional-development program based on Howard Gardner’s theory of multiple intelligences served as the foundation for the new vision for the teachers. Training in multiple intelligences would allow the teachers to see each student as a unique individual, gifted with his or her own special talents, and begin planning and teaching with individuality in mind, rather than teaching a class of students. The multiple-intelligences training took place across the school; therefore, teachers could go to one another for support, collaboration, and affirmation.

In order to collect and analyze data, it was important to discuss with the teachers, one on one, their perspectives of their experiences with the multiple-intelligences training, how it was practiced in their classrooms, and how they and their students were dealing with its effects in the classrooms. Questions were in the form of weekly journal prompts to retain some uniformity in the inquiries. Additionally, the researcher made weekly classroom observations in order to track the progress of the training as it was put into practice.

## **Participants**

This study took place in a private preschool in Central Florida that served approximately 52 children and employing 10 teachers and one director. The student population at the school was made up of 36 Caucasian, six African American, five Hispanic, and five students classified as being from other racial or ethnic groups. The entire staff population was made up of 10 Caucasians and two African Americans. The teachers' highest level of education was varied: Two had earned high school diplomas, five had earned Child Development Associate credentials, two had earned associate's degrees, and one had earned a bachelor's degree. The study involved the five lead teachers, one from each of the infant, toddler, 2-year-old, 3-year-old, and 4-year-old classes. The participants ranged in age from 19 to over 50. They had varying levels of experience, which included working as teacher assistants as well as lead teachers. Two of the teachers were trained in a high school program while completing their schooling, at which time they taught preschoolers as part of their course work under the supervision of their instructors.

## **Data-Collection Tools**

Data addressing the research questions and directing this study were gathered in a variety of ways. Qualitative data were gathered using observation notes, anecdotal records, interviews, surveys, and weekly journals. Qualitative research differs from quantitative research in that the data are often perceived as more subjective, and the human element is a factor in data collection (Bashir, Afzal, & Azeem, 2008). However, the validity of a case study can be strengthened through the process of triangulation. Approaching an issue from different perspectives and allowing for cross-verification can enhance the reliability of a case study (Guion, Diehl, & McDonald, 2011).

Guion et al. (2011) contended that triangulation is an effective approach because of the vested interest of the stakeholders involved. Bashir et al. (2008) contrasted qualitative and quantitative research by noting that, in quantitative research, the data that are collected can be measured or quantified, and, in qualitative research, the data collection takes place in a natural setting and has a multimethod focus that is interpreted by the researcher. These authors believed that this distinction places the responsibility for the credibility of qualitative research on the ability and effort of the researcher.

Throughout the study, the researcher collected data by means of observation, yielding qualitative data for analysis. Teachers were observed as a follow-up to the professional-development program, yielding data collected through an observation checklist (see Appendix A), as well as through anecdotal records. The observation checklist was based on information from lesson and unit plans designed by Campbell, Campbell and Dickinson (2004), which incorporated planning for all eight intelligences in daily instruction. The researcher also conducted interviews with the teachers before and after the training to ascertain the effect of the training on the teachers' perspectives on teaching and learning (see Appendices B and C).

Teachers completed a survey (see Appendix D) in the form of a personal multiple-intelligence graph designed by Baum et al. (2005), in which their own personal multiple-intelligence profile was captured "as a catalyst for further discussion about one's strengths and weaknesses and as clues for observation" (Baum et al., 2005, p. 20).

Teachers were asked to keep a weekly journal, documenting the progression of their own growth and development in the multiple-intelligences training. The journal offered prompts, provided by the researcher, in order to capture responses about the teachers and students that rested within similar themes (see Appendix E). Each of the aforementioned

processes served as a forum through which to collect qualitative data for the purpose of this study.

In addressing the central research question (What is the impact of professional-development training in multiple intelligences on teachers' instructional strategies?), the researcher used the teachers' journal entries, surveys, interviews, and observations from which to gather qualitative data. The teachers' responses, along with the researcher's observations, would reveal the impact on instructional strategies. Supporting Question 1 (Will the professional-development training in multiple intelligences promote a cohesive approach to instruction?) was addressed through the researcher's observations of all 10 teachers. The researcher then looked for similarities and differences in instructional strategies among and between the teachers, trying to see if patterns were developing to indicate that the teachers were moving toward a more cohesive approach to instruction.

Supporting Question 2 (What effect will the professional-development training in multiple intelligences have on classroom management?) was answered by analyzing the teachers' responses from the interview questions. Additionally, the researcher observed in the classrooms on a regular basis and had the opportunity to analyze the effects of the training on classroom management through her observations and anecdotal records. The teachers' journal entries contributed data to address this question as well.

To answer Supporting Question 3 (How will staff morale be affected by the professional-development training in multiple intelligences?), the researcher used the teachers' responses from the interview and data collected from her observations. Additionally, the teachers' journal entries served as a source from which to gather data to address this question, as teachers reflected on their interactions with their colleagues.



## Procedures

Written consent was obtained from all participants before the study began. The consent form informed the participants about the purpose of the study and assured them that all participants would be treated ethically (Creswell, 2008). The researcher followed standard procedures and ethical practices while conducting observations and analyzing journals, interviews, surveys, and anecdotal records (Creswell, 2008). The study began with pretraining interviews of all teachers and the director. The interviews were semistructured, in that the same questions would be asked of all participants. The participants were also asked to complete a self-assessment of their own multiple intelligences. The reliability of this instrument lies in the history of its repeated use. It was designed by Baum et al. (2005) and based on their research of Gardner's theory of multiple intelligences.

The professional-development program began and progressed according to the schedule (see Appendix F). The researcher served as the trainer. The teachers made weekly journal entries, responding to prompts supplied by the researcher. These entries provided qualitative data for analysis, specific to teacher reactions to the training and subsequent practice in the classroom, as well as the teachers' perspectives of students' responses to the instructional strategies in multiple intelligences. The researcher observed the teachers once each week for 30 to 60 minutes each, making note of their integration and practice of understanding of each of the intelligences within the context of interacting with their students. A posttraining interview with each participant concluded the study, again with the same questions for all participants.

The professional-development program ran consecutively with the implementation of multiple intelligences in the classroom for a period of 4 weeks.

Teachers began incorporating multiple intelligences into their lesson plans and classroom activities as they learned and understood it after each professional-development session. The initial session was a 3-hour session in order to allow an appropriate length of time to thoroughly explain the theory of multiple intelligences. The teachers also had an opportunity to become engaged in activities, utilizing the eight intelligences and the information they learned about implementing multiple intelligences into classroom teaching and learning, which afforded them the best opportunity to retain the information in their long-term memory (Karpicke & Blunt, 2011). The schedule for the professional-development program began with more lengthy sessions and tapered off to shorter sessions, allowing the teachers more independent time to plan and prepare for lessons and class activities.

The first session provided an indepth presentation of Gardner's theory of multiple intelligences. The teachers were involved in role-playing activities, arts and crafts, singing, and small- and large-group discussions, as well as an initial lecture in order to tap into each participant's dominant intelligence. After Session 1, the teachers had a good understanding of Gardner's theory of multiple intelligences and were able to identify their own dominant intelligence, as well as the dominant intelligences of their students. The second session took place the same day and focused on setting up the classrooms in a manner that would encourage the stimulation of all of the intelligences.

After this weekend of training, the teachers were tasked with returning to their classrooms to begin viewing their students through a multiple-intelligences filter in order to determine each child's dominant intelligence or tandem dominant intelligences. They also introduced Gardner's theory to their students. This teaching of the theory helped to reinforce the understanding for the teachers. Also, when the students returned to their

classrooms and the new set-up, the teachers explained to the students how the new set-up would aid in the learning process by stimulating all of the intelligences and reaching all of the students. The teachers needed this and subsequent class periods to continue viewing students through the multiple-intelligence lens in order to determine their dominant intelligences.

Session 3 was used as a time of reporting back after the first day in the beginning stages operating as a multiple-intelligences classroom. The trainer answered any questions and addressed any concerns brought to her. Teachers shared the reactions of their students and gave their own feedback, and the trainer reviewed components of Gardner's theory if necessary. The teachers returned to their classrooms after Session 3 to continue to determine their students' dominant intelligences and help them to understand Gardner's theory, as well as adjust to their new classroom environment.

The fourth session focused on training for multiple-intelligences lesson planning. The trainer used a children's trade book to demonstrate planning for all disciplines in the preschool classroom. The teachers then worked together to design their own lesson plans. Later, they shared their plans with the group. The teachers returned to their classrooms to implement their lesson plans for the remainder of the week. There was a lunch meeting at the end of the week for the teachers to seek out assistance if they felt they needed it.

In Session 5, teachers were given an opportunity to provide feedback from the implementation of their lesson plans. They shared what did and did not work and what they would and would not change in designing their next lesson plan. Teachers shared their students' reactions to the lessons as compared to traditional lessons. Teachers worked independently to design their next lesson plan and returned to their classrooms for implementation. A lunch meeting was scheduled for the middle of the week if the

teachers felt they needed assistance.

The sixth session explored various alternative-assessment methods. The trainer introduced several multiple-intelligence assessment instruments. Subsequently, the group brainstormed ideas for other multiple-intelligence assessment instruments in their classrooms. The trainer challenged the teachers to design their own multiple-intelligence assessment instruments, and the teachers returned to their classrooms to put into practice assessing their students through a multiple-intelligence lens.

Session 7 covered using trade books in instruction, teaching all disciplines across the curriculum, and integrating the arts into instruction. Each of these strategies has the potential to enhance multiple-intelligence instruction when used by a teacher who views students through a multiple-intelligence lens. The teachers returned to their classrooms and had 1 week to implement these strategies. They self-paced, adjusted, and regulated. Should they need assistance, there was a lunch meeting mid-way through the week at which they could have questions answered.

The final week also began with a lunch meeting and an opportunity to ask questions of the trainer. This allowed the teachers to feel confident that they were on the right track in their instruction and assessment. Session 8 was a time to conclude the training by answering any lingering questions, clarifying any confusion, and alleviating any concerns the teachers may have had. The trainer also took an opportunity during that time to thank the director and the teachers for their willingness to participate in the study. One final lunch meeting was scheduled for the convenience of the teachers.

### **Data Analysis**

Each method of data collection was transcribed and cataloged accordingly (i.e., teachers' journal entries were filed together, interview data were filed together). The

researcher examined each collection for similarities and differences as they related to Gardner's theory. In order to address the central research question (What is the impact of professional-development training in multiple intelligences on teachers' instructional strategies?), the researcher documented any patterns between the professional-development experiences and the effects recorded in the collected data, making note of commonalities and themes.

Close attention was paid to the teachers' perspectives regarding their own attitudes toward their instructional strategies and toward one another throughout the training, as recorded in their journals. This analysis revealed if and to what extent Gardner's theory had been put into practice in the classrooms. A field log was kept by the researcher in order to record dates, times, places, and persons significant to the study. Similarly, a field journal was maintained by the researcher in an effort to maintain a record of the study process to include decision making, rationale, judgments, and ethical considerations. These instruments, in particular, aided in the data-analysis effort to assure authenticity.

The researcher used data collected from interviews with the teachers and the director, as well as the teachers' journal entries, to address Supporting Question 1 (Will the professional-development training in multiple intelligences promote a cohesive approach to instruction?). The researcher's observations also served to provide additional data to address this subquestion. The observations also provided data to address Supporting Question 2 (What effect will the professional-development training in multiple intelligences have on classroom management?). The researcher used additional data from teachers' journal entries and interview responses to address this subquestion. Supporting Question 3 (How will staff morale be affected by the professional-

development training in multiple intelligences?) was addressed by data collected from teachers' journal entries, interviews, and observations.

In accordance with Creswell (2008), the “bottom-up approach to analysis” (p. 244) was utilized by the researcher as data were collected, synthesized, recorded, and filed in an iterative manner. Hard copies of transcribed interviews, surveys, and observations were filed, as well as digital copies saved to the researcher's laptop. The researcher went through the coding process of the data by first reading through the texts, then labeling the text with codes, next checking the codes for repetition, and then looking for broader themes within which to reduce the codes (Creswell, 2008). The data from individual teachers were analyzed and discussed, as well as an overall perspective of the effect of the professional-development training in multiple intelligences.

### **Ethical Considerations**

Throughout the course of the study, all teacher and staff participants were referred to by their initials. No students or parents were identified by name during the study, at any time. The name of the preschool was not disclosed during the study, and the school was referred to as a private preschool located in the southeastern United States. The governing council of the school was made aware of the researcher's activities on campus in order to gain permission for access to the property as an outsider. All documents were secured by the researcher on her person or at her home when in her possession, and, when at the school, they were locked in a file cabinet in the director's office when not being used.

### **Trustworthiness and Dependability**

Trustworthiness is the term used in qualitative research to refer to what is known as validity in a quantitative research study. Instead of reliability, which is used in

qualitative research, quantitative research uses the term dependability. In order to ensure the trustworthiness of this study, all data recorded were reviewed by corresponding participants in the study. This member checking allowed participants the opportunity to check facts and correct any possible misinterpretations made by the researcher. Notes included from the teachers' interviews, surveys and weekly journals were also reviewed by each teacher so he or she could be assured of their authenticity. Likewise, the director reviewed all notes that would be included that reflected conversations with or data received from her.

The dependability of the study was determined by triangulating between and among various data sources "in order to enhance the accuracy of the study" (Creswell, 2008, p. 266). As part of the triangulations process, the researcher used observations in the classrooms to corroborate findings discussed in teacher interviews and discovered in teacher journals. The process of triangulation provided the researcher with a variety of data sources to help the researcher determine how teachers are able to apply Gardner's theory in a classroom setting. Additionally, the researcher worked to design survey questions and journal prompts that were clear and unambiguous. The researcher also strived to provide a relaxed environment for the participants in order to ensure the reliability and validity of the study (Creswell, 2008).

### **Potential Researcher Bias**

The researcher has long been an advocate for Howard Gardner's theory of multiple intelligences, having been involved in training teachers, parents, and students in various school settings throughout the state. Additionally, the researcher's master's practicum involved work related to Gardner's theory, specific to fourth-grade mathematics students. The researcher also worked with a group of elementary school

teachers, having been awarded a federal grant, and developed a multiple-intelligences program at a public school for students in prekindergarten through Grade 5.

All of this previous experience strengthened the researcher's understanding of Gardner's theory as she designed and administered the professional-development program. Any potential bias was managed by careful analysis of data and checks and balances in place in the manner of participants reviewing the researcher's notes prior to publication. The director of the preschool involved in the study and the researcher had worked together in the past and were friends. This potential bias was managed by a strict adherence to following procedures outlined in the study. Additionally, the director reviewed data specific to her to assure its accuracy.



## Chapter 4: Results

The purpose of the study was to determine the effects of professional-development training on preschool teachers' instructional strategies, as well as to examine the effects of the MI theory on the teachers' attitudes, classroom management, and staff unification. The central overarching question (What is the impact of MI professional-development training on teachers' instructional strategies?) was addressed by collecting and analyzing data from classroom observations, teacher journal entries, and preintervention and postintervention interviews. These data also provided answers for the first two supporting questions (Will the MI professional-development training promote a cohesive approach to instruction? What effect will the MI professional-development training have on classroom management?). The journal entries and interviews provided data to address the third supporting question (How will staff morale be affected by the MI professional-development training?).

### Interviews Prior to Professional-Development Program

The interviews that took place before the professional-development program included five questions for the teachers and the director to answer. The researcher conducted the interviews one on one with each participant in a private setting on the school grounds to begin the study. Every participant stated that she used passive observation to assess intelligence in her students. Some participants explained further that they gave specific tasks or jobs to students in order to assess specific skills. One participant shared that she relied heavily on her coteacher for feedback regarding the children in her care. That particular participant was a novice teacher. The participants seemed to equate intelligence with skill development. When discussing making accommodations for individuality in students, the participants were mixed in their

responses as to how to make that happen.

One participant stated, “Not as much (time) as I would like, but they can do it (plan) during naptime and playground time. We do have staff meetings quarterly. It would have to be more teacher-driven where they make the time for it.” The teachers felt as though there was flexibility in the curriculum and instructional practices, however they also felt compelled to keep pace with their schedule. Teacher 5 responded, “I know what needs to be done to help the child, but honestly I feel like I need to keep up with the schedule. I feel like I need to move along.” When asked about collaborating with colleagues to facilitate individualized instruction, Teacher 4 responded, “There is a little time for brief chats, popping your head in the door, but there really isn’t enough time for a significant talk.” Because of these remarks, the researcher sensed some of the participants were conflicted in the logistics of facilitating individualized instruction for all students.

Conversely, all participants responded positively to the flexibility in their schedules, curriculum, and instructional practices regarding making accommodations to lessons and activities. Teacher 9 shared, “Another class was going on a safari and invited us along, so we stopped what we were doing and went with them!” In discussing classroom behaviors, often the participants made note of children of first-time parents who misbehaved in class because of their parents’ lack of parenting skills at home that carried over into the classroom. Additionally, some misbehavior noted was that specific to immaturity of children who were the youngest in a classroom of older children. Other behaviors noted were specific to children who acted out when not kept busy and behaviors that were typical and what the teachers termed as developmentally appropriate for specific age groups.

The researcher made note of all of the behaviors the participants mentioned in the interviews. The final question addressed the participants' perceptions of the vision for the staff and for the school. The majority of the participants felt the vision for the staff and for the school was to prioritize the children and their learning, safety and wellbeing. Several of the participants also mentioned the importance of the faith-centered teaching of the school. Teacher 4 responded, "Everyone wants the best for the children and to grow in love and Christ." Teacher 10 responded, "Most importantly, we're concerned about their spiritual development, to learn about God."

Teacher 8 responded, "I think it is that the children get to know God, that they feel that love. They get to know the fundamentals, but it is most important that they leave having felt the presence of God." Teacher 5 responded, "To raise the kids in a Christ-centered environment. I love that we are able to talk about God." Only one teacher's response was not as aligned with the others, "I guess for everyone to be on the same page, I don't know." She was very young and new to teaching, which may help to explain her response.

### **The Program, Classroom Observations, and Journal Entries**

The study was designed to schedule weekly observation visits in each classroom, to run concurrently with the professional-development program in order to track the teachers' progress of implementing Gardner's theory from concept to practice in the classrooms. Additional observations took place when classes were combined for special activities, such as a visiting farmer sharing vegetables from his farm and a visiting petting zoo sharing farm animals. While observing in the classrooms, the researcher took notes related to the teachers' implementation of MI in the classrooms and used an MI checklist to help record the incorporation of the eight intelligences into the daily lesson plans and

activities.

The infant classroom housed babies from 6 weeks to 12 months old and had nine babies in it with two teachers. Frequently, an additional helper came into the classroom to help with the individual care of the babies. The 2-year-old classroom housed 13 toddlers with two teachers. The 3-year-old classroom housed eight toddlers with two teachers. The half-day 4-year-old classroom housed eight children with one teacher, and the full-day 4-year-old classroom housed seven children with one teacher. Frequently, an additional helper came into the 4-year-old classrooms to help with the individual needs of the children. The journal entries were designed to help the researcher hear directly from each participant in a personal way (i.e., her thoughts, feelings, and perspectives regarding the MI training). The weekly journal prompts were provided in an effort to allow for some consistency in the journal entry topics for each week.

**Week 1.** The first two training sessions introduced Gardner's theory to the teachers and focused on his contention that every child learns in his or her own unique way. The eight intelligences were introduced in relation to how children learn and the trainer offered suggestions for broadening instructional strategies from the traditionally focused verbal-linguistic and logical-mathematical to include all eight intelligences identified by Gardner. The trainer noted during the observations that some teachers made an effort to incorporate MI into the lesson plans they had prepared before the first two training sessions. Upon closer investigation, the researcher noted that the teachers who were quick to incorporate MI into plans they had already written were those teachers who had at least 4 years of experience as a teacher. As an example, in one of the toddler classrooms, the teacher was showing the children large flash cards with pictures of animals on them for the children to name.

However, instead of just naming the animals, as was written in the plans, the teacher asked the children to make the sound each animal made and then to get up and move like the animal. The teacher then pulled out some materials that allowed the toddlers to have various types of tactile experiences and compare those to what the skin or fur on the animals might feel like. All of these MI experiences were extensions to the original lesson plan that were added after sessions one and two. Similarly, in the infant room, the teacher was sitting on the floor with a baby who was playing with a ring stacker. The teacher began to count the rings as the baby placed them. The next time, the teacher said the color names of the rings as the baby placed them. Another time, the teacher sang a song to the baby about stacking the rings. The teacher shared with the researcher that before the training, she would have simply sat with the baby and talked to her without the specific interaction the researcher observed. Both of these teachers had been teaching 5 or more years.

The responses to the prompt for Week 1 (As a result of our first MI training session, I approached my classroom differently this week by...) allowed the researcher to get a first impression as to the participants' initial reaction to the MI training. Having just learned about Gardner's theory, the general reaction of the participants was the desire to observe their students closely in order to see how they learn best. Although there was some skepticism, there was a 100% positive response. The participants were eager to get started implementing MI in their classrooms. Teacher 2 wrote, "I am trying to see if I can incorporate the MI in all things we do together." Teacher 1 wrote, "Paid more attention to the individual 'interests' of each infant. For example: What does the infant focus on more? Are they more interested in a certain toy or activity?"

**Week 2.** Sessions 3 and 4 focused on specific lesson planning for multiple

intelligences. The trainer went through an MI lesson plan with the teachers, and then the teachers divided into pairs and worked together on their own lesson plans. Lesson plans were shared with the whole group and extension ideas were offered. Additionally, suggestions were made as to how to spiral up or down to use the lesson plans for older or younger children. For the next observation, the plans were specific to MI, and the teachers worked hard to demonstrate their newly acquired knowledge. The unit of study throughout the school for this week was *The Farm*, and a local farmer came to the school to speak with the children and show them his many vegetables that he grew. The students had an opportunity to touch, see, smell, and taste many vegetables with which they may otherwise not be familiar.

Teacher 8 planned a lesson for when her students returned to their classroom in which she distributed a handful of raw broccoli slaw to each student and instructed them to write their names with the pieces of vegetables and when they were finished, and it was approved by her, they could eat their names. The children eagerly began placing pieces of vegetables together, spelling their names. One by one, the teacher approved the children's names, after which they ate their creations. When they cleaned up their tables, the teacher asked the children to meet her in the classroom market that was set up, and the children were asked to name the vegetables they had used to construct the letters in their names.

When they did, they were asked to find those vegetables in the market. Of course, the vegetables in their whole forms looked much different than they did when they came from the slaw bag from the grocery store. This lesson extension planned by Teacher 8, a 10-year veteran teacher, showed a deeper understanding as she continued her training.

However, observations revealed that the three teachers with fewer than 4 years of

experience, though they were willing to learn, still struggled with putting MI into practice in the classroom. Additionally, one other teacher, though she had 8 years of teaching experience, did not demonstrate the level of understanding of MI in the classroom as the other teachers who had been teaching 4 or more years.

The prompt for the second week (By seeing my students through an MI filter, I now realize...) elicited similar responses from the teachers as did the first week, pointing out their realization of the need to know and understand their individual students better and in a more authentic way regarding their multiple intelligences. They felt this knowledge would better equip them to address the learning needs of their students as individuals and the needs of their classes, as a whole. There were also several references to what can take place when a child is not engaged in learning, as referenced by one teacher of toddlers in her journal entry: “If they’re interacting in a way they don’t like, then they’re very uninterested.” Additionally, when responding to the second prompt, Teacher 1 wrote, “I need to bring ‘nature’ inside for the infants!”

Likewise, Teacher 10 stated, “The more I learn about the multiple intelligences, the more I see how important they are to a preschool child’s development. I truly want to take the time and effort to plan each week more effectively.” Teacher 8 shared that she observed a child, who typically exhibits behavior problems in the classroom, respond kindly and gently to a puppy that was brought in for a special project. She shared with the child’s teacher that perhaps this child had a strong naturalist intelligence. The teacher decided to give the child a stuffed pet to take care of while in the classroom to see if he would respond in kind. The child had a similar response while caring for the stuffed pet, and the teacher was working on similar techniques to incorporate the naturalist intelligence into his learning.

**Week 3.** Sessions 5 and 6 focused on authentic assessment, child-centered instruction, incorporating the arts and passive observation for evaluation while implementing multiple intelligences in the classroom. Because the training had reached the halfway point, the trainer began by asking for feedback, questions, concerns, and clarifications and allowed time for discussion among the participants in order to be assured that their needs were being met. The discussion was productive as the participants spoke positively about the training and their classroom experiences. Teacher 7 shared that she and her coteacher were working together much more cooperatively, and she believed it was because they understood why they are so different in their teaching methods and they had patience with that because of their understanding.

Teacher 10 stated that she was convinced MI is vital to preschool instruction and she was excited about learning more in order to benefit her students. The classroom observations revealed a growing understanding of Gardner's theory in the majority of the teachers each time they were observed. Initially, some of the teachers were slower to incorporate all eight intelligences within the course of a week's lesson plan or a unit of study. However, as the study progressed, those teachers began to show a deeper understanding of MI and how each of the intelligences fit naturally into their plans for the week or a particular themed unit. The researcher noted a great deal of added music when observing the third week.

Teacher 8 even sang songs about vegetables when traveling with her children to the classroom market. By Week 3, the teachers of the infants had music playing in the background during floor play and sometimes during lunch time. Two of the toddler classes marched in rhythm bands around the school grounds multiple times. Additionally, Teacher 4 realized it was raining at the appointed recess time so she organized an



impromptu rhythm band parade inside the classroom. She admitted to the researcher that before the training she would have sat the children on the carpet and read them a story or would have allowed them extra center time. This week's training reminded her of the importance of tapping into the musical/rhythmic intelligence of all children.

Prompt 3 (By seeing my colleagues through an MI filter, our relationships are...) was designed to encourage the teachers to talk about their relationships with one another. The response to this prompt was overwhelmingly positive. Ten of 11 participants responded that the MI training improved their relationships with their colleagues. One participant wrote, "I see a more team-like approach to working together to help solve issues with students." Another wrote, "The relationships are changing because now I have a better understanding of why they do the things they do." Teacher 10 responded as follows:

God created each of us differently. We all have different skills/stronger multiple intelligences. I believe as a staff of an early childhood development center, it is wonderful that each of us is stronger in different areas of multiple intelligences. Even as adults, we can learn from each other. Each of us can grow stronger in our weaker intelligences by observing and talking to coworkers.

**Week 4.** The final week found the teachers becoming more comfortable with MI teaching. They spoke more freely about the concept and how it fit into their lesson plans. Sessions 7 and 8 focused on cross-curricular planning and implementation and served as a culmination of the study for the teachers. The director brought in a mobile petting zoo of farm animals to wrap up the farm unit. The researcher observed the teachers interact with the students as they touched the animals and mimicked the sounds the animals made and the ways the animals moved. After returning to their classrooms, the students asked many questions about the animals' environment on the farm and their typical meals each day. For the older children, the discussion turned to the food chain and how some animals

are grown for food.

The responses to the final prompt (Because of the MI training, my effectiveness as a teacher...) were 100% positive. All 10 teachers agreed that there was some positive aspect to the training in regard to their effectiveness as a teacher. Teacher 7 stated her effectiveness as a teacher “has gotten better! This has opened up my eyes to seeing the different ways children learn and how important it is to strengthen and practice all areas.” Teacher 4 responded, “I am able to pick up on subtle cues and adapt my teaching to help children progress quickly.” Teacher 8 stated the following:

My effectiveness as a teacher is to try new ways to motivate and actively involve my students in the learning process. It has helped me to develop lessons that draw on a variety of different intelligences, allowing me to meet the needs of many more students, rather than through one method. I feel MI training will help lead my students to their fullest potential. I believe that the children will benefit and respond positively in knowing that I respect and support their own particular strengths.

Teacher 6 responded, “It’s changed a lot. I can now plan my day and lessons around all the different ways children learn. I now know to teach the kids in a way that they will understand and comprehend.” Teacher 1 responded, “It will make me plan more activities that will help to develop the different intelligences. By doing this, I believe I will be a more effective teacher.”

### **Interviews Following Professional-Development Program**

The interviews that took place after the MI training included 14 questions for the teachers and the director to answer. The researcher conducted the interviews one on one with each participant in a private setting on the school grounds at the conclusion of the study. The questions were grouped into three sets to better identify patterns in the teacher responses. Questions 1 through 5 addressed any changes the MI training may or may not have initiated. Questions 6 through 9 addressed implementation of the MI theory in the

classrooms. Questions 10 through 14 addressed whether or not the MI training was of personal or professional value and if the participant would seek any further action to enhance their understanding of Gardner's theory.

In the first set of questions that addressed MI changing their perspective, all of the participants agreed that the training had initiated a positive change for them both personally and professionally in the way they view themselves, their students, and their colleagues. However, five of the 10 teachers stated that they did not feel as though the training changed the way they viewed or responded to the parents of their students. In the second set of questions that addressed implementation of the MI theory in the classroom, six of the 10 teachers stated they do not face any challenges in implementing MI in their classrooms. The other four who felt otherwise cited time for planning and their own limitations as their challenges. However, Teacher 3 stated, "I'm including MI and I see an improvement in them getting what I'm trying to teach. I also see an improvement in behaviors. Since they're learning better, they are feeling better about themselves."

A realization made by Teacher 4 when discussing what is and is not working in the classroom was "not relying only on my dominant intelligence, because that isn't what's working with the children I'm teaching." In the third set of questions that addressed the value of MI training, all but one of the teachers stated the training was of personal value to them. The various reasons ranged from "affirming their dominant intelligence" to "helping me understand who I am." All 10 teachers stated that the training was of value to them professionally. In response to the question about the most valuable aspect of the professional-development program professionally, Teacher 3 stated, "Seeing how the children can learn differently and the teachers can teach differently."

Regarding the same question, Teacher 10 responded, “It can be and is very important to preschool development to bring MI into the classroom.” The director’s response to the same question was as follows: “The teachers being on the same page, being able to name the intelligences. I chose this curriculum because it involves MI, although it doesn’t name them, and now my teachers will see that.” The final question (What will you do to enlighten others about Gardner’s theory of multiple intelligences?) was responded to positively by all participants, if not enthusiastically. Teacher 1 stated, “I think the more who know about MI and can embrace it helps more children grow and develop to their full potential.” Teacher 5 stated, “Telling people about being a teacher and that MI is something they should check out and it’s not just for teaching; it works for a lot of aspects in life.”

### **Case Studies**

**Participant 1.** Teacher 1 was a veteran teacher with 25 years of experience. When asked in the interview before the training about behavior issues with her students (Question 4: Do you have any issues with behaviors in your classroom? If so, what do you see as the root cause?), she blamed parents for the misbehaviors, stating, “Yes, parents allow the child to control everything. Whatever the baby wants, the baby gets.” However, after completing the training, Teacher 1 stated that her view of her children had changed. She responded as follows:

I look at them even more individually now. I’m focusing on like this baby seems to be drawn more to music, etc., or this baby seems to like books more. Now I know why they may not be into certain activities and may start to act up.

The observations revealed Teacher 1 interacting with the infants at a deeper level as the observations progressed. Rather than simply talking to the babies for verbal stimulation, Teacher 1 began singing to the babies. She also began counting with the

babies as she stacked the ring toy, as well as naming colors with each ring. Teacher 1 made several statements during the initial training sessions that she could understand how MI works with older children, but she did not see how it was relevant to babies. As the training progressed, Teacher 1 not only changed her thinking in that regard, but she was quick to make suggestions as to how MI could be implemented in the infant classroom during group discussions. Teacher 1 shared with the whole group her “light bulb moment” to stop simply talking to the children during floor play and begin counting and naming colors, specifically with the ring stacking toy.

**Participant 2.** Teacher 2 had 5 years of experience. She worked in the infant room with Teacher 1. She began the training enthusiastically, ready to gather new tools with which to begin each day, as was evidenced by the fact that she volunteered to make up the first two sessions she missed because of a death in the family. She sat down one on one with the trainer for the make-up sessions and stated, “I’m so excited to learn new things that will help my babies!” Although a young teacher, this positive and enthusiastic attitude prevailed throughout the study. Teacher 2 never saw the age of her children as a hindrance or deterrent in implementing MI in the classroom.

Her response to how she would approach her classroom differently was that she had realized the power of music with infants, especially, and had begun to sing or hum to the babies to help calm them. In observing Teacher 2, the researcher found that she was quick to use music for everything as it seemed fun, easy, and most familiar to her. Additionally, infants respond to music and it is gratifying to receive an immediate response from them. Teacher 2 stated in the interview after the training that she wanted to continue researching Gardner’s theory. This continued research will improve her understanding of the theory and allow her to attain a more thorough understanding of all

eight intelligences in order to plan weekly lessons that incorporate all eight at a deeper level.

**Participant 3.** Teacher 3 was a novice teacher with only 1 year of teaching experience. She is also very young. She did not miss any of the training sessions, which showed some initiative; however, she did not complete all journal entries which limited data collected from her. She participated in the discussions at the sessions and followed the lead of her coteachers in the classrooms. The journal entries she did provide and the answers to the interview questions showed a basic level of understanding of Gardner's theory. One journal entry stated, "I'm learning how there are lots of different ways to learn and not just two or three." Additionally, in response to Question 13 (What was the most valuable aspect of the professional-development program for you, professionally?), she stated, "Seeing how the children can learn differently and the teachers can teach differently." In observing Teacher 3, she did not take much initiative and relied on her coteachers for direction and instruction the majority of the time. Although willing to learn, Teacher 3 required supervision. Additionally, there were no significant changes in her instructional strategies over the course of the study.

**Participant 4.** Teacher 4 was a seasoned teacher with 8 years of experience. She missed three sessions due to work or classes. Additionally, during observations, the researcher noted negativity in the classroom with statements such as the following: "Even though I have an ear infection, we're going to make a lot of noise and play some instruments." "Are you worn out, yet? I was worn out 30 minutes ago!" "The children are very angry because we can't go outside." Teacher 4 understood the concept of Gardner's theory, as was evident by her answers to the interview questions; however, she was either unable or unwilling to transfer that understanding to practice in the classroom. Her

answer to Question 5 (How has MI training and development changed the way you plan and prepare lessons and classroom activities?) was as follows: “I can see the kids that need help in certain areas and try to come up with activities to help them grow in all the areas.”

However, in the observations, the researcher saw a lack of MI implementation in the classroom, as well as a lack of motivation, overall. Teacher 4 responded to Question 8 (While working to perceive your teaching philosophy through an MI filter, what single adjustment in your teaching do you believe to be most effective in regard to improving student achievement?) with the following: “Not relying only on my dominant intelligence, because that isn’t what’s working with the children I’m teaching.” This shows a clear understanding of MI teaching; however, she did not demonstrate this understanding in the classroom. In two of the questions, Teacher 4 stated that she did not have enough time to plan adequately to implement MI into her lesson plans, which may be a factor in both her negative attitude and lack of implementation.

**Participant 5.** Teacher 5 was a teacher with 1 year of experience. She missed two training sessions with no explanation. However, when she was at the sessions, she was fully engaged in discussions and activities. Her responses to the interview questions showed interest in the training and a good understanding of Gardner’s theory. Her answer to Question 2 (How has MI training and development changed the way you view your students?) was as follows: “That’s changed a lot, actually. I see them differently. As I watch them, I notice who is rhythmic and who isn’t, who likes to touch things outside and who doesn’t, etc., and I connect that to the intelligences.”

Similarly, her response to Question 8 (While working to perceive your teaching philosophy through an MI filter, what single adjustment in your teaching do you believe

to be most effective in regard to improving student achievement?) was as follows:

“Taking more time to work with the children individually and notice their individual intelligences and work with them.” Teacher 5 noted the personal benefits of the training, as well. Her response to Question 1 (How has MI training and development changed the way you view yourself?) was as follows: “I already knew I was an introvert, but I know now I am intrapersonal. It made me realize I definitely am intrapersonal and it’s an intelligence.”

Likewise, in responding to Question 12 (What was the most valuable aspect of the professional-development program for you, personally?) Teacher 5 stated, “Learning more about my own multiple intelligences.” Teacher 5 responded to Question 14 (What will you do to enlighten others about Gardner’s theory of multiple intelligences?) by stating, “Telling people about being a teacher and that MI is something they should check out and it’s not just for teaching, it works for a lot of aspects in life.” Teacher 5 became engaged to be married during the course of the training, and she also shared during the sessions that she was working to assess her fiancé’s dominant intelligence. The answers to some of her questions showed a great interest in applying Gardner’s theory to her personal life experiences.

**Participant 6.** Teacher 6 entered the training with no experience. She was very young and answered many of the interview questions with “I don’t know.” She did not participate significantly in the discussions at the sessions, although her attendance was good, only missing one session. Observations showed that Teacher 6 took her lead from the other teachers, following their examples, looking to them for directions, and asking for their help. When not given direct instruction, Teacher 6 stood and watched the children. There was no change in this teacher’s instructional strategies or teaching



techniques over the course of the study. The journal entries for Teacher 6 did not reveal an understanding of Gardner's theory. To the contrary, her entry for Week 2 was very contradictory of Gardner's theory as she wrote, "Everybody learns different, everyone has a different way that they understand things. I realized that most of my students learn the same way and act the same way."

**Participant 7.** Teacher 7 came to the study with 4 years of teaching experience. She missed 1.5 sessions but was fully engaged in the discussions when she was present. Teacher 7 demonstrated an understanding of Gardner's theory in some of the answers to the interview questions. Her response to Question 3 (How has MI training and development changed the way you view and respond to the parents of your students?) was as follows: "I feel like I can tell them more about their child. This has changed the way I can communicate with parents because I feel like I have more to say." Similarly, her responses to both Questions 6 and 7 (What personal/professional challenges have you faced as you have worked to incorporate MI into your classroom plans and activities?) were as follows: "The fact that music smart and body smart are the dominant for that age group."

Observations for Teacher 7 revealed a growing understanding of the theory, as well. Initially, she simply added music to the lesson plans, but her activities grew to incorporate weekly inclusion of all eight intelligences. An example was the flash cards activity with animal pictures that grew to animal sounds, movements, textures, habitats, and several other lessons that incorporated all eight intelligences. Although Teacher 7 grew in her understanding of the importance of incorporating all eight intelligences in weekly lesson plans, the lessons were basic in nature and did not show a deep understanding of Gardner's theory and how to move from concept to practice.

**Participant 8.** Teacher 8 entered the study with 10 years of experience. She attended every session and was fully engaged in discussions. She demonstrated a deep understanding of Gardner’s theory in her answers to interview questions, her journal entries and the observations. In answering Questions 1 and 2 regarding how MI training and development changed her view of herself and her students she responded, “It opened my eyes and understanding to a new way of teaching and learning. I was familiar with different learning styles, but learning about MI gave me a different awareness of what to look for in children.” In response to Question 5 (How has Multiple Intelligence training and development changed the way you plan and prepare lessons and classroom activities?) Teacher 8 responded, “Now there is more purpose in my lesson plans to make sure everything is incorporated in my plans to make sure all intelligences are addressed in the week.” Likewise, her journal revealed the following:

When I am doing one particular activity, it is interesting to observe how certain children will gravitate eagerly to what I am doing and some may seem less interested and make it known they want to do something else by their actions. I now realize the importance in trying to cover each lesson through the eight intelligences rather than a standard structure that may not cater to each individual need.

Observations showed that Teacher 8 demonstrated a thorough understanding of Gardner’s theory. She recognized a young boy who showed great interest in a puppy that had been brought in for show and tell, when other children had lost interest. This boy often acted out with behaviors that were unacceptable in the classroom. Teacher 8 discussed with the boy’s teacher that perhaps his naturalist intelligence might be tapped into in her lesson planning. His teacher followed through and saw a positive change in the boy’s behavior. The researcher observed Teacher 8 engaged with her students. She incorporated the eight intelligences as she taught lessons within the farm theme, writing

names with broccoli slaw, marching to the classroom market, naming the vegetables, singing about the vegetables as they marched, eating the slaw, matching the slaw vegetables with the whole vegetables, and counting the vegetables.

**Participant 9.** Teacher 9 came to the study with 20 years of experience. Her first reaction to the training was a bit skeptical. Even by the end of the training, she responded to Question 1 (How has MI training and development changed the way you view yourself?) with some skepticism by stating, “I wondered about whether or not I could strengthen my weaker intelligences.” However, the researcher viewed this response as a lack of confidence more than anything. Teacher 9 missed two training sessions but appeared to be motivated and anxious to learn. Her response to Question 2 (How has MI training and development changed the way you view your students?) was as follows: “I’m trying to look at them differently. I’m trying to figure out how to strengthen them and where. If they’re not getting what I’m teaching one way, I try to figure out another way.” Teacher 9 wrote in her journal at the conclusion of the study regarding her effectiveness as a teacher:

I hope it is growing stronger. The light-bulb, ah-ha moment, went on as I was preparing lesson plans for the week, using our curriculum. I recognized how much they use the MIs in the curriculum and how I can use them, not every one daily, but each one multiple times during the week, and it is generally fun for the kids; they think they are playing, not working.

While observing Teacher 9, the researcher noted she had set up centers in her classroom in which each of the multiple intelligences was represented. Her students were allowed to rotate among the centers in order to participate in all of the activities provided. This allowed for stimulation for all of the intelligences and an opportunity for passive observation for the teacher. The center provision showed a thorough understanding of Gardner’s theory for Teacher 9, despite her lack of confidence.

**Participant 10.** Teacher 10 entered the study with 16 years of experience. She attended every training session and was eager to learn. Her journal entry for Week 1 was as follows:

I enjoy learning new teaching strategies to bring into my classroom. After the introduction of all the MIs, I was eager to see where I can use them in my classroom. I think the first thing I want to do is take the time to observe each child. I want to see if I can figure out their strong MI.

She continued writing in her journal, “The more I learn about the multiple intelligences, the more I see how important they are to a preschool child’s development.” Teacher 10 continued to show enthusiasm for the training in her responses to the interview questions. She responded to Question 2 (How has MI training and development changed the way you view your students?) by stating, “It made me realize that I need to try my best to see how they learn best so I can reach them to foster the best learning for them.”

Her growth in understanding Gardner’s theory was evident in her answer to Question 13 (What was the most valuable aspect of the professional-development program for you, professionally?), when she stated, “It can be and is very important to preschool development to bring MI into the classroom.” In observing Teacher 10, the researcher found the greatest outcome of the study for her to be a confidence builder, which was evident in her answer to Question 12 (What was the most valuable aspect of the professional-development program for you, personally?) when she stated, “I learned more about myself and defined it more specifically. It helped me be more accepting of myself.”

**Participant 11.** The director of the center was aware of multiple intelligences and had even participated in MI training in her past. She welcomed the training for her teachers, as was evidenced in some of her answers to interview questions. Her response

to Question 13 (What was the most valuable aspect of the professional-development program for you, professionally?) was as follows: “The teachers all being on the same page, being able to name the intelligences. I chose this curriculum because it involves MI, although it doesn’t name them, and now my teachers will see that.” Similarly, her response to Question 14 (What will you do to enlighten others about Gardner’s Theory of Multiple Intelligences?) was as follows: “Continue to affirm the teachers when I see them using MI and continue to challenge them. Share it with parents.” In her journal response to Week 3’s prompt (By seeing my colleagues through an MI filter, our relationships are...), the director stated the following:

By seeing my colleagues through an MI filter, our relationships are somewhat different from when we had not had any whole school MI training. My colleagues seem to use MI language more when we are discussing attributes of each other. I see a more team-like approach to working together to help solve issues with students and even center-wide issues such as choosing curriculum instruction. Through an MI filter, relationships seem stronger and more authentic.

The director attended all training sessions and was actively engaged in all discussions.

Additionally, the responsibility fell to her to schedule rooms for housing the training and securing audio-visual equipment for the training, as well. The director was also available to assist with copying materials and verifying attendance documents (see Appendix G).

### **Research Questions**

**Central question.** The central overarching question (What is the impact of MI professional-development training on teachers’ instructional strategies?) was addressed through the analysis of qualitative data collected from journal entries, interview questions, and classroom observations. The impact of the training on the teachers’ instructional strategies proved to be varied, based primarily on the teachers’ depth of understanding of Gardner’s theory and their ability to transfer their knowledge of the

theory to practice in the classroom. In like manner, their depth of understanding proved to be consistent with their level of teaching experience. The ages of the teachers did not prove to be a factor. As an example, a 23-year-old teacher with 1 year of teaching experience realized a limited understanding and, thus, minimal MI implementation in the classroom.

However, a 19-year-old teacher with 5 years of teaching experience realized a deep understanding of MI and, therefore, a thorough implementation in the classroom over the course of the study. Additionally, teachers made note that, when lesson planning, they began looking at their students as individuals, rather than as a class, in order to better serve their needs. Teacher 1 stated, “I look at them even more individually now.” Teacher 5 said, “I see them differently. As I watch them, I notice who is rhythmic and who isn’t, who likes to touch things outside and who doesn’t, etc., and I connect that to the intelligences.” Teacher 3 stated, “I look at them more individually.”

**Subquestion 1.** The first subquestion (Will the MI professional-development training promote a cohesive approach to instruction?) was addressed through the analysis of qualitative data collected from journal entries, interview questions, and classroom observations. Learning about Gardner’s theory of multiple intelligences together proved to provide something tangible for the teachers to rally around. As they learned about Gardner’s theory and how to implement it in the classroom, the teachers formed a common bond. The training afforded them an opportunity to work together toward the same end which stimulated a team spirit, again, binding them together. Teacher 2 stated, “It’s more fun because we agree on what to do with the children more.”

Even though understanding and implementation was limited by some, everyone was motivated and willing, presenting a cohesive approach to instruction. Teacher 3

stated, “I try to include the different intelligences in the plans and activities.” Teacher 6 stated, “We try to include all of the multiple intelligences within a week in order to involve all of the children’s intelligences.” Teacher 9 stated, “I definitely notice our curriculum and what it has or doesn’t have weekly, to be sure all eight intelligences are included.” The director stated the following:

By seeing my colleagues through an MI filter, our relationships are somewhat different from when we had not had any whole school MI training. My colleagues seem to use MI language more when we are discussing attributes of each other. I see a more team-like approach to working together to help solve issues with students and even center-wide issues such as choosing curriculum instruction.

**Subquestion 2.** The same methods were used to collect qualitative data in order to address Subquestion 2 (What effect will the MI professional-development training have on classroom management?). Teacher 8 shared her encounter with the little boy, who has been known to engage in misbehavior in the classroom, when he was introduced to a puppy. She made note that his behavior changed drastically and discussed the behavior change with his teacher. Subsequently, the teacher worked to incorporate the naturalist intelligence activities and lessons in an individualized plan for the boy and reported a marked improvement in his behavior. Additionally, Teacher 3 stated, “I’m including MI and I see an improvement in them getting what I’m trying to teach. I also see an improvement in behaviors.” Even in the infant classroom, Teacher 2 noted in her journal changes that she was beginning to witness when she wrote, “We learned one of the children likes music and calms down if you hum or sing when she’s irritated.”

Similar to the paradigm shift suggested by Gloeckler and Cassell (2012), Teacher 8 described in her journal entry the importance of meeting the needs of each individual child by incorporating MI: “I now realize the importance in trying to cover each lesson through the eight intelligences rather than a standard structure that may not cater to each

individual need.” Empowering children with the knowledge and understanding of their multiple intelligences shifts the paradigm from teaching to them to teaching alongside them. The researcher’s unpublished book was used during training and in the classrooms to teach the children about MI theory through the use of a children’s trade book.

**Subquestion 3.** The third subquestion (How will staff morale be affected by the MI professional-development training?) was addressed through the analysis of qualitative data collected from journal entries, interview questions, and classroom observations. Teachers volunteered to attend the training. As the training progressed, the teachers voiced their enthusiasm about Gardner’s theory and its usefulness in their personal lives, as well as their professional lives. Teacher 2 stated, “I realized my own child learns in a different way than I thought he did.” Teacher 10 stated, “I learned more about myself, defined it more specifically. It helped me be more accepting of myself.” Teacher 10 wrote in her journal a similar comment regarding her colleagues to what other teachers had remarked as follows:

God created each of us differently. We all have different skills/stronger multiple intelligences. I believe as a staff of an early childhood development center, it is wonderful that each of us is stronger in different areas of multiple intelligences. Even as adults, we can learn from each other. Each of us can grow stronger in our weaker intelligences by observing and talking to coworkers.

In her journal entry, the director stated, “Through an MI filter, relationships seem stronger and more authentic.” When addressing the journal prompt for Week 3 (By seeing my colleagues through an MI filter, our relationships are...), Teacher 4 responded, “Better. It’s nice to know coworkers’ intelligences to help me out in various projects and school events.” The training caused the teachers to look at one another differently, in a broader sense, as was evidenced by remarks such as those made by Teacher 5, who stated, “We’re all so different in some aspects and seem a lot alike in other aspects.”



Teacher 7 made the following comment:

We are all improving a lot. It's fun to go to someone who has a different dominant intelligence to get ideas and they teach me a little so then I have more of that intelligence in me. It's helped me to learn what kind of activities to do with the children and helped to see that doing all of them is very important because it's effective for others.

Teacher 3 stated that learning about the MI theory helped her understand her colleagues better and, therefore, better understand their instructional strategies. Similarly, other teachers agreed that learning about MI helped them better understand their colleagues, thus improving morale. Teacher 1 responded, "It helps me understand why they do and don't do certain things." Teacher 4 stated, "Knowing now their strengths, I look to them for help with certain projects." All 11 of the participants stated that they would seek further MI training to benefit them both personally and professionally. Likewise, all 11 of the participants responded positively regarding enlightening others about Gardner's theory of multiple intelligences. Teacher 5 stated, "Telling people about being a teacher and that MI is something they should check out and it's not just for teaching, it works for a lot of aspects in life."

The director shared, "Continue to affirm the teachers when I see them using MI and continue to challenge them. Share it with parents." Teacher 8 stated, "Everyone I see, I'll mention it! I feel that I've gained something from it and I want to talk about it!" Teacher 1 responded, "Tell them there are eight intelligences, explain them to them, and discuss developing all the intelligences. I think the more who know about MI and can embrace it helps more children grow and develop to their full potential." The excitement and enthusiasm with which the teachers concluded the training and the fact that they were interested in continuing MI training was a testament to the positive staff morale as MI was woven into the fabric of the daily curriculum.

## Chapter 5: Discussion

### Introduction

This qualitative case study was conducted in a small preschool located in the southeastern United States. The purpose of the study was to determine the effects of training in Howard Gardner's theory of multiple intelligences on preschool teachers' instructional strategies. Additional consideration was given to effects on teacher attitudes, classroom management, and staff unification. The study involved 10 teachers, one director, and approximately 50 students. The professional-development program consisted of eight training sessions over the course of 4 weeks, during which the teachers incorporated MI strategies and techniques into their lesson planning.

### Implications of the Study

As discussed previously, there is no hard data to date showing a direct correlation between MI teaching and improved classroom behaviors. However, throughout the qualitative findings in the study, themes emerged that clearly pointed toward more active engagement of students in learning after MI strategies were incorporated into lesson planning, leading to fewer behavior problems in the classroom, addressing Research Subquestion 2 (What effect will the MI professional-development training have on classroom management?). Ponitz et al. (2009) found that cohesive instructional strategies led to better student engagement in learning, which ultimately resulted in an improvement in student behaviors. Likewise, Armstrong (2009) stated that students' classroom behavior is affected by their environment, and, if their individual needs are met, they have a better opportunity for success.

One teacher remarked that she realized she had been teaching to her own dominant intelligence. Upon that realization, she began to include all of the intelligences

in her weekly lesson planning in an effort to reach every student in her class. She reported seeing an immediate change in the attention span of the children and their interest in what she was teaching. The teacher no longer saw her students through the conventional industrial model of education that focused on logical-mathematical and verbal-linguistic intelligences alone (Christodoulou, 2009; Gardner, 2006a). Rather, after the training, the teacher began to view her students through an MI filter, which included all of the eight intelligences. Her perceptions of them as individuals changed and, therefore, her instructional strategies changed in order to accommodate their individual needs (Ozgen et al., 2011; Saban, 2009).

The researcher made note during the interviews after the training that several teachers responded positively to Question 4 (How has MI training and development changed the way you view and interact with your colleagues?). The theme that emerged was one of a deeper understanding of colleagues and a desire to work together to utilize the various intelligences together toward the same end, thus addressing Research Subquestion 1 (Will the MI professional-development training promote a cohesive approach to instruction?) The director added that she observed more consistent language among the teachers after the MI training in discussing curriculum and instructional strategies and that they had a more team-like approach as they worked together. Several teachers shared that they felt more comfortable going to other members of the teaching staff for assistance with projects and lesson planning, after finding out what their dominant intelligence was. The MI training helped the teachers know one another better and that knowledge unified the staff.

Another theme revealed by the qualitative data was one of a new motivation for the staff. Several staff members spoke about MI as something new and exciting for them

in their personal lives, as well as their professional lives. Five of the 10 teachers made a reference to their own children or significant other and having more success in dealing with them at home now that they had a better understanding of who they were in terms of their dominant intelligence. Because they saw a benefit to them personally, as well as professionally, they were excited to be involved, which addressed Research Subquestion 3: How will staff morale be affected by the MI professional-development training? The director, who was familiar with Gardner's theory, chose the preschool curriculum a year ago because she felt it used MI strategies and techniques, although not by name. She saw that the teachers, having gone through the study, recognized MI in the curriculum and they began to collaborate with one another in their planning.

### **Utilization of the Method**

The qualitative method for data collection allowed frequent opportunities for participants to communicate their perspectives before, during, and after the training. This method provided enough data to produce themes that the researcher was then able to categorize for further analysis. The journal entries provided qualitative data as the participants shared their perspectives regarding the professional-development training and their implementation of the theory in their classrooms. These data, along with notes from observations, allowed the researcher to compare and contrast various groups of participants when analyzing results. Additionally, the answers to the interview questions following the professional-development program provided qualitative data that allowed the researcher to continue to compare and contrast various groups to add to the findings.

Baxter and Jack (2008) characterized case-study methodology as an approach that is valuable in that it can "afford researchers opportunities to explore or describe a phenomenon in context using a variety of data sources" (p. 544). The phenomenon

described in this study was the effect of training in Gardner's theory of multiple intelligences on teachers' instructional strategies, the context involved the teachers' classrooms, and the data sources included interviews, journal entries, observations, surveys, and discussions during the training sessions. Using a case-study method allowed for the comparison and contrast of each case studied as data were collected and analyzed. This approach is important to ensure that the phenomenon is being perceived from several different angles, rather than through a narrow perspective (Baxter & Jack, 2008).

### **The Big Picture**

Gardner's theory helps teachers take a step back and look at each of their students as individual learners. This means they do not teach their class of students, but rather they teach each child, individually, through class instruction. The teacher who is trained in Gardner's theory understands the difference and the importance of seeing each child through an MI filter (Armstrong, 2009; Hoerr, 2010). When one teacher in the study realized one little boy in her class was "nature smart," she allowed him to care for a stuffed class pet while carrying out his daily responsibilities. His misbehaviors in the classroom decreased significantly. Another teacher made note of a little girl in her class who often withdrew from the group and refused to participate in class activities.

The teacher began to see this little girl as "intrapersonal" or "self-smart" rather than as noncompliant and designed activities that allowed the little girl to make choices about whether or not to participate in some of the class activities. The teacher also provided a drawing journal for the little girl to allow her to communicate her feelings about classroom participation, during the whole group activities, if she chose to do so. These changes in the classroom decreased the stress of both the little girl and the teacher. Both of the classroom environments improved because of the teachers' change in their

perspectives of their students due to their MI training.

The significance of the study lies within the positive findings of the teachers' responses as they went through the professional-development program. Learning about the eight intelligences helped them know and understand their colleagues better, thus promoting better working relationships. Likewise, going through the MI training helped them know and better understand their students, thus allowing them to better know how to teach them, as individuals. If the teachers are doing a better job teaching their students, the children will be more engaged in learning, and, as some of the participants have reported, there will be fewer behavior issues in the classroom. Teachers who work well together as a team and children who are actively engaged in learning are two key ingredients for success in education (Ash & Jackson, 2012; Ponitz et al., 2009).

Education has struggled for years to find something that works for every child. Gardner's theory would suggest it may be as simple as knowing how the child learns best and tapping into that intelligence to teach the child (Armstrong, 2009, 2011; Crichton & Kopp, 2006; Gardner, 2011; Lazear, 1994; Leung, 2002).

The qualitative data from the study suggested varying degrees of success in transitioning from concept to practice with Gardner's theory of multiple intelligences in the classroom for the different teachers. The data are broken down in the Comparison and Contrast section. An additional concern noted by two of the 10 teachers was that it took more time to incorporate all of the eight intelligences into weekly lesson planning to be assured of engaging every student. The teachers stated this challenge in response to Question 7 (What professional challenges have you faced as you have worked to incorporate MI into your classroom plans and activities?).

The teachers' varying levels of ability or willingness to implement Gardner's

theory in the classroom were consistent with what Vetter (2012) referred to as “teacher change and positioning theory” (p. 30). The author described learning as an “identity process” (p. 30) and that teachers, through professional development, are always in a state of change, wherein they need continued support. She concluded, “Thus, teacher change is an identity process” (p. 30). The teachers involved in the study responded to the training, succumbing to varying levels of change, as described by Vetter (2012).

Positioning is one way that teachers find and process their identities (Vetter, 2012).

According to Vetter (2012), these positions can be thrust upon the teacher, they can be willingly acquired over the course of time, or they can exist for only a moment in time. The positions can also make change easier or more difficult. One teacher in the study who initially showed hesitancy in change may have done so because of the position she felt she was in. She came to the school as a former director at another preschool and, therefore, having not only more experience than other teachers, but also having had more authority. Admitting that her instructional strategies needed change may have been the same as admitting failure to her.

At the other end of the spectrum, the teacher who came to the training with no experience and was hesitant to implement Gardner’s theory into her lesson plans, it may have been because she did not feel empowered to change. Vetter (2012) spoke to the importance of mentoring and follow-through for teachers to effect successful change. She added that a personal dialogue and meaningful feedback were both vital to the change process. She stated, “To redefine professional development so that it facilitates teacher change, more research needs to examine the spaces that foster identity work in which teachers become architects of their own transformation” (p. 33). Similarly, Margolin (2011) argued that teachers must serve as “change agents” (p. 7) in order “to bridge the

gap between theory and practice” (p. 7). She viewed teachers as the driving force to mount a continuing practice to model for change in order to give students quality educational experiences.

### **Comparison and Contrast**

In analyzing the results, the researcher divided the participants into three groups for comparing and contrasting, as patterns began to develop. The researcher considered grouping the participants by age, but, as the qualitative data were analyzed, the patterns began to shape the grouping by experience for more authentic results.

**Novice teachers.** The first group was made up of novice teachers who had fewer than 4 years of teaching experience. These participants were young but not necessarily the youngest of all the participants (i.e., 23 years or younger). Three participants composed this group. Two of the three participants in this group did not return all the materials from their portfolios; therefore, complete data were unavailable for each participant. However, during the observations, the researcher noted consistency in two of the three novice teachers, those with little or no teaching experience, regarding their lack of confidence in implementing MI in the classroom without specific direction from their older and more experienced coteachers.

Additionally, the same two of the three participants in this group did not demonstrate a thorough understanding of Gardner’s theory, specifically moving from concept to practice, which was evidenced by their journal entries, answers to questions following the professional-development program, and observations of classroom instruction by the researcher. The novice teachers attended the majority of the training sessions, they participated in the discussions, and they were willing to attempt to incorporate Gardner’s theory into their teaching strategies. However, they lacked the



teaching experience to transition from learning about MI theory to putting it into practice in their classrooms.

**Experienced teachers.** The second group of teachers was the experienced group with 4 or more years of teaching experience. This group was made up of three teachers: two 19-year-olds and one 22-year-old. The other distinguishing characteristic of this group was that all of the teachers were trained in a high school program with an in-house daycare, thus beginning their teacher training at a very young age. Therefore, despite their young ages, they brought to the study several years of experience working with young children. Two of the three teachers in this group of teachers were among those who missed the most sessions during the training, missing three sessions each. The third participant in this group missed 1.5 sessions.

The group of experienced teachers, as a whole, missed more sessions than the other two groups. Although younger than the first group of novice teachers, the second group of experienced teachers grasped MI theory better than the first group. Additionally, they were able to incorporate the theory into their lesson plans and classroom activities more readily, as was evidenced by the observations, albeit an incorporation of the theory lacked real depth. Often, the teachers would simply play music and consider that enough to stimulate the musical-rhythmic intelligence. Although two of the three experienced teachers did not reach a deep understanding of Gardner's theory in regard to implementation, they had begun the process, and, given more time, the researcher saw the potential for a complete and thorough understanding of the theory and best practices for implementation in the classroom.

Their journal entries and answers to interview questions suggested a growing understanding of Gardner's theory; however, putting the theory into practice was their

challenge. There were times when all three teachers in this group showed enthusiasm for participation in the study. Yet, one of the three teachers also exhibited a negative attitude during sessions and in the classroom, whereas another teacher was openly excited to be learning something new throughout the duration of the study. Their youth and perhaps lack of maturity may have been a factor in their inability to transition the theory from concept to practice, despite their many years of teaching experience.

**Veteran teachers.** The group of veteran teachers was made up of five teachers with teaching experiences that ranged between 10 and 25 years. This group's attendance record at the sessions was second behind the novice teacher group. Three of the five participants in this group attended every session. The qualitative data revealed that the teachers in the veteran group were able to understand Gardner's theory and incorporate it into their lesson plans and classroom activities. Observations by the researcher revealed successful implementation of the theory, demonstration of a thorough understanding of the concept by the teachers, and an ability to transition the theory from concept to practice. The journal entries and interview questions provided additional data, corroborating the findings in the observations.

The veteran teachers took seriously the need for breathing new life into education by finding strategies and techniques that work in the classroom. This was evidenced by statements they made such as the following: "Now there is more purpose in my lesson plans to make sure everything is incorporated in my plans to make sure all intelligences are addressed in the week." "Giving me a new perspective of teaching and opening my mind and motivating me to become a better teacher." The fact that the veteran teachers are also older than the rest of the teachers and are able to draw upon life experiences may have an effect upon their perspectives and their reactions to the training, although the

data suggested that the years of experience are more of an indication of what caused differences in perspectives, reactions, and other data outcomes.

Karatas, Arslan, and Karatas (2014) found that the greater the number of years of experience in teaching, the more confidence the teachers had and, therefore, the less inner anxiety they showed in teaching. In studies conducted by Barton (2013) and Barton and Cox (2012), teachers of varying experience levels entered administrative credential programs. The authors concluded that the teachers with the most years of experience reported having learned more in the training, “with room to grow” (p. 100), and completed the training with a willingness to continue learning or changing. These studies show the number of years of experience to have some effect on the confidence level, the growth, and the willingness for continued growth in professional development.

### **Relevance of the Study**

The target school has taken its first step toward becoming an MI school. There are many schools operating today that are based on Gardner’s theory of multiple intelligences. The New City School in St. Louis, Missouri, serves students in preschool through sixth grade. It became an MI school in 1988 under the leadership of Dr. Thomas Hoerr. The Gardner School of Arts and Sciences is located in Vancouver, Washington. It is a facility that serves students in preschool through eighth grade. The Gardner School is under the leadership of Mark McGough. Wauka Mountain Multiple Intelligences Academy is in Gainesville, Georgia. It is a school serving students in kindergarten through fifth grade under the leadership of Dr. Jo Dinnan.

The Key Learning Community is a school serving students in kindergarten through Grade 12 in Indianapolis, Indiana. It began as the Key School, a school serving kindergarten through Grade 6, in 1986 and now has grown to include students through

the 12th grade. The Key Learning Community is a public school and is under the leadership of Mrs. Sheila Dollaske. These are just a few of the many MI schools operating around the United States today that can serve as models for the study target school. Hoerr (2010) and his staff chronicle their classroom experiences and provide a practical guide for teachers to make the leap from concept to application in their book written about the multiple intelligences. This book and others like it will serve as valuable resources for the study target school.

### **Limitations**

It would have benefited the study to have had the opportunity to collect more data, perhaps extending the length of the study by at least 50% or even doubling it to 8 weeks. An extension would have allowed more time between sessions for the teachers to devote to lesson planning, and it would have allowed the researcher more time for observations in the classroom. It would have also afforded the teachers more time to study and research Gardner's theory on their own, in conjunction with the training. Because some of the teachers were only able to grasp the theory at a basic level and therefore implement it on the surface, it would have been beneficial for the trainer to provide one-on-one feedback to the teachers after each observation. This may have provided the teachers with the support they needed to better understand Gardner's theory and how to put it into practice. It may also have been beneficial for the trainer to have gone into the classrooms and demonstrated teaching an MI lesson for each teacher at some point during the training. This would have provided the teachers with a model for their own lesson planning and implementation.

Additionally, it may have been beneficial to the participants to have had the opportunity to view videos of existing MI programs around the country in order to

understand that they are a reality and to see firsthand how they operate. Likewise, a guest speaker from such a program, either a teacher or principal, could have been brought in to speak to the study participants to better inform them of the reality of an MI program and afford them the opportunity to ask questions of someone who is actively involved in an MI program. These suggestions, along with more time, could possibly have broadened the scope of the study, which would have been beneficial to the participants and produced additional qualitative data for analysis.

### **Conclusions and Recommendations**

The study target school and number of participants proved to be a good choice. The director and staff were cooperative, pleasant to work with, and a good choice as well. In conclusion, training teachers in MI instructional strategies can have a varied impact on a preschool program, albeit predominantly positive. Bringing teachers together for a common professional-development program tends to unite them as a staff. However, giving them an expectation to use the training, report back in subsequent training sessions, and discuss lessons and classroom activities with colleagues formed an even closer bond as they strove to work toward the same goals. In addition, MI training afforded the teachers personal insight that benefited them privately, as well as professional knowledge to use in the classroom. Because of this, they saw the information as a bonus and the training as more than job related. Not only did the whole school implement MI as the common instructional strategy, but the teachers also began using common MI language in discussing their students, the curriculum, and one another.

The training pulled the teachers together as a group in perceiving their students as individuals and working to view them through an MI lens as they prepared lessons and implemented plans. After the training, previously perceived misbehavior became viewed

as unengaged behavior due to a different dominant intelligence than what the current activity warranted. Because of this initial consideration, the teachers' first response was to redirect students to an activity more in keeping with the students' dominant intelligence. Teachers began to realize success in viewing their students through an MI filter and responding in kind, rather than seeing all disengaged behavior as misbehavior. A longer study would have yielded more data specific to behavior management. However, the results of the analysis of the limited data are promising.

A recommendation for future studies is to introduce a diagnostic instrument for the professional-development program such as the concerns-based adoption model (Southwest Educational Development Laboratory, 2015) after the training. This will provide important feedback from the participants as to their concerns and how they are responding to the program. It will allow trainers to provide necessary support to ensure the continued implementation of the program. An additional recommendation is for existing school systems to consider Gardner's MI theory as a foundation for learning and teaching. There is much to be learned from the successes of existing MI schools.

A future study might include larger classes and older children to determine how the results of this study would convert to such variables. McFarlane (2011) contended that Gardner's theory has the potential to impact education in a profound way because it addresses diversity in a global sense. As the world of education becomes more global and less confined to a small classroom, largely because of technology, it is incumbent upon teachers to broaden their view of their students. As Schmidt (2001) recommended, educators must recognize all children as intelligent as they strive to strengthen each of their eight intelligences, which, in turn, will strengthen their sense of self and give them their best opportunity to reach their full potential.

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Appendix A  
Teacher Observations



## Teacher Observations

<b>Lesson</b>	<b>Mathematical/ Logical</b>	<b>Verbal/ Linguistic</b>	<b>Visual/ Spatial</b>	<b>Bodily/ Kinesthetic</b>
Math				
Language Arts				
Science				
Social Studies				
Creative Movement				
Music				
Art				

<b>Lesson</b>	<b>Musical/ Rhythmic</b>	<b>Interpersonal</b>	<b>Intrapersonal</b>	<b>Naturalist</b>
Math				
Language Arts				
Science				
Social Studies				
Creative Movement				
Music				
Art				

## Appendix B

### Teacher Interview Questions Prior to Professional Development

### Teacher Interview Questions Prior to Professional Development

1. On what do you base your perceptions for assessing intelligence in a student?
2. How do both your curriculum and daily instructional practices provide flexibility to accommodate individuality in students?
3. Is there time in your school day to discuss with your colleagues accommodations to your curriculum/instructional practices, should you choose to make them?
4. Do you have any issues with behaviors in your classroom? If so, what do you see as the root cause?
5. What do you feel is the vision for your staff? For your school?

## Appendix C

### Teacher Interview Questions Following Professional Development

### Teacher Interview Questions Following Professional Development

1. How has Multiple Intelligence training and development changed the way you view yourself?
2. How has Multiple Intelligence training and development changed the way you view your students?
3. How has Multiple Intelligence training and development changed the way you view and respond to the parents of your students?
4. How has Multiple Intelligence training and development changed the way you view and interact with your colleagues?
5. How has Multiple Intelligence training and development changed the way you plan and prepare lessons and classroom activities?
6. What personal challenges have you faced as you have worked to incorporate MI into your classroom plans and activities?
7. What professional challenges have you faced as you have worked to incorporate MI into your classroom plans and activities?
8. While working to perceive your teaching philosophy through an MI filter, what single adjustment in your teaching do you believe to be most effective in regard to improving student achievement?
9. While working to perceive your teaching philosophy through an MI filter, what single adjustment in your teaching do you believe to be most effective in regard to enhancing students' sense of self?
10. What are some personal steps you can take to enhance your understanding of Gardner's Theory of Multiple Intelligences?
11. What are some professional steps you can take to enhance your understanding of Gardner's Theory of Multiple Intelligences?
12. What was the most valuable aspect of the professional-development program for you, personally/professional?
13. What will you do to enlighten others about Gardner's Theory of Multiple Intelligences?
14. What aspects of the MI training, if any, did you find were not helpful or valuable?

Appendix D  
Teacher Survey

## Teacher Survey

Activity/ability	Linguistic	Logical– Mathematical	Musical	Spatial	Bodily– Kinesthetic	Interpersonal	Intrapersonal	Naturalist
Be family "accountant"								
Do logic puzzles								
Sing								
Speak in public								
Read biographies								
Do crossword puzzles								
Keep a diary								
Give advice and support								
Spend time outdoors								
Act in theatrical productions								
Write songs								
Do crafts								
Build or renovate								
Read or write poetry								
Take photos								
Take care of kids								
Study maps								
Do volunteer work in the community								
Be able to say no			*					
Do sports								
Dance				* *				
Draw or paint								
Garden or farm								
Play musical instrument								
Sculpt or carve	*							
Add your own								
Add another								
TOTALS								

Baum, S., Viens, J., & Slatin, B. (2005). *Multiple intelligences in the elementary classroom: A teacher's toolkit*. New York, NY: Teachers College Press, p. 21.

Appendix E  
Weekly Journal Prompts



## Weekly Journal Prompts

## Week One

As a result of our first MI training session, I approached my classroom differently this week by:

## Week Two

By seeing my students through an MI filter, I now realize:

## Week Three

By seeing my colleagues through an MI filter, our relationships are:

## Week Four

Because of the MI training, my effectiveness as a teacher:

Appendix F

Professional-Development Schedule

## Professional-Development Schedule

M	T	W	TR	F	S
				Pre-PDP Interviews	9 a.m.-12 noon Session 1 LUNCH 1 – 3 p.m. Session 2
6-8 p.m. Session 3		6-8 p.m. Session 4		Lunch meetings <i>How can I help you?</i>	
6-8 p.m. Session 5		Lunch meetings <i>How can I help you?</i>			9 a.m.-1 p.m. Session 6
		6-8 p.m. Session 7		Lunch meetings <i>How can I help you?</i>	
Lunch meetings <i>How can I help you?</i>		6-8 p.m. Session 8		Lunch meetings <i>How can I help you?</i> and Pre-PDP Interviews	

Session 1 – Introduction to MI, using the story “The Prince” with role playing; discussion of triune brain, small group sharing

Session 2 – Retrieval practice, looking through the MI lens, setting up classrooms

Session 3 – First day reactions to classroom, adjustments, feedback, refreshers

Session 4 - Lesson planning using “Caps for Sale”, classroom activities overview

Session 5 – Progress, changes, feedback

Session 6 – Authentic MI assessment

Session 7 – Cross-curriculum planning and implementation, using trade books and the arts

Session 8 –Wrap-up, questions, concerns, clarifications, kudos

Appendix G  
Attendance Record

## Attendance Record

Participants	Session 1	Session 2	Session 3	Session 4	Session 5	Session 6	Session 7	Session 8
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								