Fall 2008

Multiple Intelligences in the Classroom

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Senior Thesis Submitted to

Western Kentucky University Honors College

Fall 2008

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Abstract:

This project addresses the current hot topic in the field of education, of Multiple Intelligences. Howard Garner, psychologist and Harvard professor, believes there are multiple ways children learn. Through that belief he created the Multiple Intelligences Theory (MI) which states there are eight ways people learn or complete tasks. This project looked at the Theory of Multiple Intelligences and analyzed how it is applied in the classroom. Through research, direct observation, and interviews with teachers, it was found how this theory is practically applied in classrooms today.

The following three questions were answered in this project. How are current teachers in the field applying the multiple intelligences theory in the classroom setting? (The traditional approach of using the Verbal/Linguistic and Logical/Mathematical learning styles has seemed to fade away.) Are the other Multiple Intelligences used as often in the classroom? And finally, do teachers know their students' Multiple Intelligences, and are they deliberately using those in their lessons, or is it unintentional?

Dedication Page

This thesis project is dedicated to my family. Thank you for being there for me through all the struggles this project entailed. I appreciate each of you, and love you very much.

--Andrea

Acknowledgements:

Thank you to each person that assisted me in this thesis project. Though I cannot begin to name each of you, some specific people are acknowledged below.

Dr. Jukes—Thank you for agreeing to be my thesis advisor. I would not have completed this project on time without your assistance; the countless emails and meetings it took to put this together. I appreciate the long hours of work that you put into this project with me.

Dr. Huss—Thank you to my second reader. I am grateful for all the constructive criticism you gave to make this thesis the best it could be.

Dr. Motley—Thank you to my third reader. You made a great addition to my thesis committee. I appreciate all your assistance.

Thank you also to the two teachers who allowed me to observe in their classrooms. Without their cooperation this project would be non-existent.

Jessica Orlofske—Thank you for all the support you have provided throughout this endeavor. Without you I would not have made it this far.

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Chapter 1: Overview

A statement from the Kentucky Department of Education Kentucky Elementary Learning Profile, Sept. 1995:

> "A Primary Assessment System for Kentucky must fulfill the following requirements.
> ....consider and support multiple intelligence theory." (pg. 3)

The Multiple Intelligence Theory (MI) was developed by Howard Gardner, Harvard Graduate Professor in the School of Education, in 1983. Gardner's theory maintains that each person possesses several intelligences which are used to carry out specific tasks. This theory is important to education because teachers see more frequently that students learn in different ways. The MI theory helps explain the differences seen. I became interested in Multiple Intelligences during my first observations in classrooms during my sophomore year of college. I saw children using different strategies to arrive at answers and occupying themselves with different tasks, and I wondered what could explain these differences in children.

My research questions include: 1. How are current teachers in the field applying the Multiple Intelligences Theory in the classroom setting? 2. Are Multiple Intelligences, other than the traditional linguistic and logical methods used as often in the classroom? And 3. Do teachers know their students' Multiple Intelligence strengths, and is there deliberate use of those strengths in their lessons, or is it unintentional?

Howard Gardner was the co-director of Harvard's Project Zero from 1972—2000, and is now the chair of the Steering Committee of Project Zero. The project is doing research on various topics including Multiple Intelligences. The mission of the project is to understand and enhance learning, thinking, and creativity in the arts, as well as in humanistic and scientific disciplines, at individual and institutional levels (Project Zero, 2008). Currently, he is researching the effect of the new digital media on ethics, particularly focusing on secondary and college students. He is the author of 20 books on multiple intelligences which have been translated into 27 different languages.

Gardner's theory debuted in his first book entitled *Frames of Mind,* where he defined seven intelligences. Those first seven intelligences are: Interpersonal (appreciates group work), Intrapersonal (prefers working alone), Kinesthetic (needs movement), Linguistic/Verbal (understanding through speaking), Logical/Mathematical (uses numbers), Musical (Learns through rhythm and music), and Spatial (visual understanding) (Concept to Classroom, 2004).

Naturalistic intelligence was added to the theory by Gardner in 1999 in his book entitled *Intelligence Reframed.* This intelligence was added in 1999 because it met the criteria that Gardner uses for his intelligences. His criteria are as follows: "Is there a particular representation in the brain for the ability?" Are there populations that are especially good or specially impaired in an intelligence? And, can evolutionary history of the intelligence be seen in animals other than humans?" (Guignon, 2004) Currently, there is some debate as to whether the ninth intelligence of Existentialism has been added to the theory or not. This debate is occurring because this intelligence does not meet all the criteria Gardner uses in adding intelligences.

As Gardner puts it, “I shall continue for the time being to speak of 8 ½ intelligences.” (Gardner, 2006, p.21) In all individuals, he suggested, all eight intelligences are unevenly distributed, and can change over time, and each person has a different intellectual composition similar to our finger prints. Each intelligence is located in a different part of the brain and can either work independently to complete a task, or several intelligences can work together to complete something. These intelligences may define the human species and how we differ from other species represented here on earth. In order to better understand one-self and strengths there first must be understanding of what each intelligence means (Viadero, 2003; Concept to classroom, 2004).

To see these intelligences in classrooms first hand, data collection on this project began in March 2008 through observation in two fifth grade classrooms in a South Central Kentucky town of about 50,000 people. The composition of both schools chosen included ethnic and socio economic diversity. For example, School One was not a Title One school, while School Two does receive Title One money school wide. The tool used to collect MI information derived from the *Classroom Climate Checklist* developed by Performance Learning Systems Incorporated in 2001. Compiled data was placed in tables for analysis as a case study. This format was chosen because it allowed for straightforward analysis of patterns in the two classrooms and cross comparisons between the two.

Chapter 2: Review of Literature

Intelligence can be defined in several unique ways. It is considered to be the potential for finding or creating solutions for problems, which involves gathering new knowledge the ability to create products and to provide valuable services and a

biopsychological potential to process information that can be activated in a cultural setting to solve problems that are of value in a culture. Most people maintain that there is but a single intelligence; typically people think of intelligence using the Stanford Binet IQ test which measured the chronological age and maturation age of a person to determine IQ. The MI theory holds that each person possesses eight intelligences, and uses them to carry several kinds of tasks (Great performances, 2002; Shearer, 2004; Gardner, 2006).

Interpersonal intelligence allows one to understand and work with others. It is usually found in people who have effective verbal and nonverbal communication, the ability to note distinctions among others, and have the ability to entertain multiple perspectives. Students often identify with this intelligence when they are ones who favor working in a group, are involved in several extra curricular activities, and enjoy thinking about major issues such as poverty and war. Highly Interpersonal people are leaders among their peers, skillful at communicating, and seem to understand other's feelings and motives. Anyone who deals with people usually possesses a high interpersonal intelligence: teachers, therapists, salespersons, and politicians (Shepard, 2004; Gardner, 2006).

Numerous famous people are well known for their excessive levels of specific intelligences. Nelson Mandela and Martin Luther King Junior are known to possess high Interpersonal intelligence. Leader of Nazi Germany, Adolf Hitler was also found to have a dominant Interpersonal intelligence, though he used it for heinous purposes. Anne Sullivan, the famous teacher and mentor of Helen Keller, was said to have an influential

Interpersonal intelligence. Their stories prove that Interpersonal intelligence does not depend on language (Nolen, 2003; Gardner, 2006).

Intrapersonal intelligence is defined as, "knowledge of the internal aspects of a person: access to one's own feeling life, one's range of emotions, the capacity to make discriminations among these emotions and eventually to label them and to draw on them as a means of understanding and guiding one's own behavior." (Gardner, 2006, p.17) People with a high Intrapersonal intelligence would rather work alone then be forced to work in a group, and are often labeled shy. They are very aware of their own feelings, and are self-motivated. Intrapersonal intelligence deals more with the individual self. It is the ability to know oneself and to understand one's own inner workings. Psychologists, spiritual leaders, and philosophers have all been labeled as having high intrapersonal intelligence. These professionals use this intelligence to help people solve their personal problems. Oprah Winfrey and Mother Teresa are well known for their Intrapersonal intelligence because of their understanding and appreciation of people. Though these two historical figures are not considered to be loners, they are very aware of their own feelings and self-motivated which is why they represent the Intrapersonal intelligence (Nolen, 2003; Shepard, 2004; Shearer, 2004; York, 2008).

Students who prefer working alone, enjoy helping others, and believe everyone should be treated fairly tend to have a dominant Intrapersonal intelligence. In a classroom it is often difficult for a student with intrapersonal intelligence to express themselves. This can be aided with imagination exercises, music, language pieces, or similar tasks where students are expressing themselves. (Gardner, 2006, p. 228)

Linguistic/Verbal intelligence is defined as everything having to do with language, speech, reading, and writing. It is said to be the most widely shared human competence. Poets, journalists, and novelists tend to have the highest level of understanding to this intelligence. Maya Angelou and John Grisham are said to possess a high Linguistic intelligence. Even in deaf populations where a manual language is not explicitly taught, children will often invent their own manual language and begin to use it, which is evident of strong Linguistic intelligence. Students who have a high Linguistic intelligence enjoy writing, reading, telling stories or doing crossword puzzles. They are often great storytellers and joke tellers. They are also able to express themselves rhetorically and poetically. Language helps make memorization easy for these students. These students often remember subjects better if they take notes; they love to read and journal, and enjoy public speaking (Shepard, 2004; Fogarty, 2005; Gardner, 2006; York, 2008).

Spatial intelligence is defined as the capacity to perceive the visual world accurately through transforming, modifying and recreating the aspects of one's individual real world. To some this is known simply as Visual intelligence. Blind people also have the ability to develop Spatial intelligence. Mental imagery, spatial reasoning, graphic skills, and imagination are all part of Spatial intelligence. Spatial intelligence deals mainly with the concrete world, and is considered the ability to think in three dimensions. Spatial problem solving is used in navigation and in using maps, and requires a great deal of spatial intelligence (Nolen, 2003; Gardner, 2006; Scherer, 2006).

Careers that use Spatial intelligence range widely. Painters, map topologists, sculptors, sailors, navigators, architects and engineers all use spatial intelligence. Chess

players and grocery store baggers also are said to have a high spatial intelligence. Jobs such as navigators and tour guides may also possess a high level of Spatial intelligence. Artists like Claude Monet and Edgar Degas are known for their spatial intelligence. Students with extreme levels of this intelligence may be caught doing mazes, puzzles, or just drawing and daydreaming. Spatial students enjoy rearranging their desk, watching music videos, and creating art. Graphic organizers such as a Venn diagram help these students learn because all the information is organized in a specific way (York, 2008).

The Logical/Mathematical intelligence and Linguistic intelligence have traditionally been emphasized in our schools. Logical/Mathematical intelligence is calculating, creating hypotheses, and completing mathematical operations. It can be defined as manipulation of objects and problem solving, and is dominant in the fields of science and mathematics. Any physicist, chemist, and mathematician are assumed to have a prominent Logical/Mathematical intelligence, but it can also be found in detectives. Albert Einstein and Marie Curie are well known for their high level of Logical/Mathematical intelligence. Students with this intelligence are often working on patterns, math problems, strategy games or brain teasers and experiments. These students are often very organized, appreciate schedules and structure, and are quick to ask for assistance when they do not understand a task. It is said that individuals with high Logical/Mathematical intelligence often show an interest in music (Shepard, 2004; Gardner, 2006).

Musical intelligence involves the ability to understand pitch, rhythm, and tone as well as thinking in sound. Being able to manipulate music and combine its elements is a portion of musical intelligence. Many people with Musical intelligences can often hear

and remember sounds that others might miss. Musicians, vocalists, composers and conductors all have a high musical intelligence. Students with an advanced Musical intelligence often create a rhyme to memorize information, can easily find patterns in things, and are often distracted when a radio or television is on while they are trying to work. Singers such as Whitney Houston and The Beatles are thought to have high musical intelligence (Shepard, 2004; Gardner, 2006; York, 2008).

For these people and others with high musical intelligence they not only remember music, they cannot get it out of their minds. Some researchers, including Robert J. Sternberg, a psychology professor at Tufts University, maintains that Musical intelligence should not be included in Gardner's theory. Sternberg calls Gardner's theory "a theory of talents, not one of intelligences" (O'Shea, 2001) Gardner presents this example as a counter, "autistic children who play a musical instrument beautifully but who cannot otherwise communicate, underscore the independence of musical intelligence" (Gardner, 2006, p. 9). This provides evidence for Musical intelligence

Bodily/Kinesthetic intelligence is the ability to think in movement, using the ability to manipulate objects and several physical skills. This involves a sense of timing and perfection of skills through mind-body unison, which goes further then eye-hand coordination. Careers in this field include athletes, dancers, surgeons, actors, mimes, technician, typists, programmers, and jugglers. Mikhail Baryshnikov and Michael Jordan are both considered to have high Bodily/Kinesthetic intelligence. Students who have an excessive Bodily/Kinesthetic intelligence are often not able to sit still for long periods of time, learn better by doing rather than watching, and are usually involved in outdoor games or sports (Shepard, 2004; Stager, 2008).

Naturalist intelligence is displayed in a person who is, “keenly aware of how to distinguish the diverse plans, animals, mountains, or cloud configurations in their ecological niche” (Gardner, 2006, p.19). Gardner suggests that one’s entire consumer culture is based on the Naturalist intelligence because it includes the capacities we use when we are drawn to one item rather than another.

People with advanced Naturalistic intelligence have an appreciation for the natural world. They are very concerned with the present, and the future of the world and preserving our planet for future generations. They often show an expertise in recognition and classification of plants and animals. Charles Darwin, the founder of evolution theory, is a prime example of the Naturalist theory. Careers such as a botanist or a chef would possess high levels of the Naturalist intelligence. Students who enjoy spending time outdoors, love to group items together, and always want to recycle are said to have high naturalist intelligence (Armstrong, 2000; Nolen, 2003; Shepard, 2004; Gardner, 2006).

There is still some debate about the last intelligence of Existentialism. It has not been officially added by Gardner as of 2008, but it is rumored to be considered. The Existential intelligence involves deep questions about human existence, such as the meaning of life, why people die, and how the human race ended up on planet Earth. Gardner seems hesitant about adding this intelligence because it is too close to a moral boundary that he does not want to cross. He reveals, “I may well be persuaded that there are additional intelligences to be added to the list and perhaps sufficient evidence will accrue to deem Existential intelligences as a separate frame of mind” (Nine types, 2001; Gardner, 2004, p.216).

A basic understanding each of these intelligences shows that they can work together or separate. For example, a dancer can excel in his art only if he has a resilient Musical intelligence to distinguish the different rhythms and patterns in the music, Interpersonal intelligence to grasp how he can emotionally move his audience through his movements, as well Bodily-Kinesthetic intelligence to complete the movements successfully (Fogarty, 2005).

> "The MI theory leads to three conclusions: 1. all people possess the full range of intelligences: that is what makes human beings, cognitively speaking. 2. No two individuals—not even identical twins-have exactly the same intellectual profile because, even when the genetic material is identical, individuals have different experiences (and identical twins are often highly motivated to distinguish themselves from one another.) 3. Having strong intelligence does not mean that one necessarily acts intelligently. A person with high mathematical intelligence might use her abilities to carry out important experiments in physics or create powerful new geometric proofs; but she might waste these abilities in playing the lottery all day or multiplying ten-digit numbers in her head" (Gardner, 2006, p.23).

Classroom Implication of Multiple Intelligences

Initially Gardner did not plan for his theory to be applied to education because it did not come with a program for educators to model in their classroom (Viadero, 2003). At the time the theory emerged, educators were searching for ways to explain the

dramatic differences they saw in students, and how they learned. "It [the MI Theory] seemed to answer many questions for experienced teachers who all had students who did not fit the mold, students were bright, but they did not excel on tests." (Guignon, 2004) The Multiple Intelligence Theory proposes that children all learn material in different ways and it assists in understanding their strengths and weaknesses. Knowing children's learning strengths and weaknesses will help teachers encourage students to try new ways of learning. It will also aid teachers in planning according to the classroom's abilities.

Students with different ways of learning are often labeled as learning disabled, ADD (attention deficit disorder) or simply underachievers, when their unique ways of thinking and learning are not addressed by a heavily linguistic or logical-mathematical classroom (Armstrong, 2000). Gardner's (2006) statement in his book *Multiple Intelligences, New Horizons*, explains why this is true. "My theory can reinforce the idea that individuals have many talents that can be of use to society that a single measure is inappropriate for determining whether a student graduates has access to college, and the like, and that important materials can be taught in many ways" (p.84).

The Multiple Intelligences classroom helps students realize how smart they are by providing them with different outlets of learning. More time in planning and preparation might be necessary when using Gardner's theory. The Multiple Intelligences classroom looks different than the typical Linguistic/Mathematical classroom. It requires a few important ingredients such as: "administrative support, student choice in planning, and patience and persistence in working through initial resistance to MI activities by both students and colleagues" (Shearer, 2004, p.10; Shepard, 2004, p. 210).

How does an educator discover in which intelligence(s) each student's strengths lies in order to create the appropriate MI classroom? Howard Gardner presents two suggestions,

> "Take them on outings to a children's museum or to some other setting that provides a rich experience, like a playground with many kinds of games and watch them carefully. Second, give a short questionnaire about their strengths to the students and their parents and if possible their teachers from the previous year" (Gardner, 2006, p.84).

From research as well as this case study it is seen that, "It is impossible, as well as impractical, for a teacher to accommodate every lesson to all of the learning styles found within the classroom." (Fogarty, 2005, p. 13) So, if that is not the answer, then how are Multiple Intelligences implemented in the classroom? Specific objectives need to be planned out and expressed to the students. With the MI theory there are several ways of meeting that objective. Each of these ways may be different, but they are just as important as the traditional ways. Some teachers prefer instead to look at Multiple Intelligences and "isolate each intelligence into particular activities" (Hopper, 2000, p.27; Great performances, 2002). Linda Campbell author of *Teaching & Learning through Multiple Intelligences* describes the following five approaches to adding Multiple Intelligences into the classroom.

1. **Lesson design.** Some schools focus on lesson design. This might involve team teaching ("teachers focusing on their own intelligence strengths"), using all or several of the intelligences in

their lessons, or asking student opinions about the best way to teach and learn certain topics.

2. **Interdisciplinary units.** Secondary schools often include interdisciplinary units on certain topics.
3. **Student projects.** Students can learn to "initiate and manage complex projects" when they are creating student projects.
4. **Assessments.** Assessments are devised which allow students to show what they have learned. Sometimes this takes the form of allowing each student to devise the way he or she will be assessed, while meeting the teacher's criteria for quality.
5. **Apprenticeships.** Apprenticeships can allow students to "gain mastery of a valued skill gradually, with effort and discipline over time." Gardner feels that apprenticeships "…should take up about one-third of a student's schooling experience" (Guignon, 2004).

In using these five ideas, students may decide to express his or her knowledge of that content in one of many different ways (i.e., puppetry, model making, classroom demonstrations, songs, and plays). **“**The vast amount of time now dedicated to meeting local, state, and national mandates makes it very difficult for even the most ingenious practitioners to devote much time to MI activities. The challenge, at least in the short run, is to absorb MI thinking into the daily routine, rather than to devote extra time that few have to such pursuits” (Great performances, 2002; Gardner, 2004, p.215).

Case Study

The research model used in this project was the case study. Two fifth grade classrooms were observed in South Central Kentucky. Both schools were observed on three separate days, but each was on a Tuesday, Thursday, and Friday.

Separate observation was also done at the first school to implement Gardner's theory of Multiple Intelligences into the classroom. This school, known as the Key Learning Community, was founded in 1987 and is located in Indianapolis, Indiana.

By organizing the research into a case study the focus is on the results gathered and not on a specific discovery. The advantages for this project were that both schools were in different districts, and classroom one was taught by a female while classroom two was taught by a male. Both teachers taught the same core subject of math.

There are also some limitations to this study. There were a different number of students in each classroom, during the observations they were preparing for the Kentucky mandated assessment test, so the instruction seen was not necessarily typical of that classroom.

Chapter 3: Research Methodology

During this research, three schools were observed to determine how teachers are using multiple intelligences in their classrooms today. Two of the schools observed in were in South Central Kentucky.

Data collection began in the middle of March 2008 and continued until the end of April 2008 for the two schools in South Central Kentucky. Observation was done at School One on Tuesday, March 18, 2008, Thursday, April 17, 2008, and Friday, April 18, 2008. Observation was conducted at School Two on Tuesday, April 15, 2008, Thursday,

April 24, 2008, and Friday, April 25, 2008. Once the observation at those two schools was complete a trip was made to Indiana on Thursday, October 2, 2008 to complete the one day assessment of that school.

During each observation in Kentucky, the *Classroom Climate Checklist* developed by Performance Learning Systems Incorporated was used to guide the research. This checklist was found online and holds descriptors of items necessary to meet each intelligence in the classroom. Once the item was seen during observation it was checked off. (See Appendix A)

The first school observed was School One in South Central Kentucky. This school was founded in 2002 and houses about 620 students preschool to sixth grade. Last year they scored 107.2 out of 140 on the Kentucky mandated test, and met 10 out of 10 on their No Child Left Behind Goals. The first set of observations was done in Classroom One's fifth grade of 27 students.

Teacher One uses Thoughtful Education in her classroom which is a learning style theory, and loves it because of all the materials and ideas it comes with. She knew that Howard Gardner's theory had something to do with Multiple Intelligences, and that they were not the same as the Thoughtful Education learning styles. During the interview, she stated that she was a visual learner. She does give her students a survey on learning styles at the beginning of the year and at times will analyze her week to make sure she is addressing all four learning styles in the Thoughtful Education Curriculum. She teaches math for the entire fifth grade, as well as spelling.

The second school observation was done at School Two in South Central Kentucky. Teacher Two's classroom of 23 students was observed at this school. This

school houses about 275 students from Kindergarten to grade five. Last year they scored 96.5 out of 140 on the Kentucky mandated test and met 10 of 10 No Child Left Behind Goals.

He, like Teacher One also teaches primarily math each day. He has been teaching for 23 years, though five of years were spent in administration. He is a musical, kinesthetic, and visual learner; and tries to incorporate those intelligences into his classroom. As a professional musician he tries to integrate music into his classroom as much as possible. He was familiar with Howard Gardner because he had some classes on his theory during graduate school in Minnesota during the early 1990s. He does not always give a Multiple Intelligences survey to his students, but uses the Thoughtful Education curriculum in his classroom because it is district wide. He tends to use manipulatives, drawing, and note taking to meet the diverse learning needs of his students.

The third school observed is located in Indiana. It was created in 1987 through a vision to create a comprehensive music and art education, and Howard Gardner's theory became the basis for that. This school was the first dedicated to Multiple Intelligences. It began only as an elementary school and then middle school was added and finally high school was completed in 2003. There are now several MI schools in America, Canada, Australia and elsewhere, but the first was in Indiana. (Kunkel, 2002)

This school houses about 400 students from Kindergarten to twelfth grade with a capsize of 25 for each classroom. They are required to wear uniforms each day. It is a public magnet schools that has a lottery with sibling preference to get the privilege to attend. The principal, Dr. Chris Kunkel said, "Now 20 years later, the theory still guides

the schools, hiring, scheduling, and curricular practices" (Kunkel, 2007, p. 205) Her philosophy is if someone wants to be a traditional teacher, then why would she apply here? This is the only non-traditional school in the district; so there are plenty of other options.

There are several unique aspects of this school. Their belief is that they provide all areas for students to explore, and that they need to build on their strengths and not ignore them. First, they do not give grades. They do however give out progress reports with a key so that the parents can understand. There are very few discipline issues because the students are given so much free choice. There is an in-school detention area, but many of the teachers said they do not use it very often.

They also have library, art, music, and physical education at least three to four times a week. There are no organized sports teams, so that money was allocated to pay for the extra teachers in the specialized areas so the students can meet with them multiple times each week. During music class, each student is required to play an instrument. The elementary students all play violin, the middle school students play a woodwind instrument, and the high school students are able to choose any instrument they prefer.

The elementary classrooms are multi-aged levels and not grouped by ability. The kindergarten students have their own classroom, first and second grades are together, then third-fourth-and fifth grades are all together, and sixth grade is with the middle school. There is one teacher per classroom that teaches the core subjects and specialized teachers for the other areas. Textbooks are used as little as possible, though they do have them for reading and math.

The students are required to put a portfolio together that follows them from kindergarten until they graduate. They video tape the two original projects they create and present to their classmates each year and put them onto a disc that is sent out to the colleges they would like to attend when it becomes that time.

Each student also participates in a class called pod four times a week. They stay in the same pod each year, and the elementary students have 13 to choose from. This is a time where they get to focus on an activity of their choosing they enjoy with only about 11 other elementary students of all ages and a supervising teacher that enjoys the same class. This half hour class each day allows the students to work with their strongest intelligence. Some pods seen during the visit were a farming pod where they were watering the small garden of radishes and beans they had created, a yoga pod where they students were having a moment of reflection about the day, and a Board Game pod where they were discussing strategies to win each game.

Throughout the school you can see intelligences labeled on different things. In one room the tree house was labeled with Linguistic, in another the dinosaurs in a miniature sand box were labeled with the Naturalistic intelligence. Even with the focus on state test scores today the school, with its unique vision, is doing quite well. The middle school and high school students excel above the Indianapolis district and Indiana state level. The only difficulty they are having, in regards to testing, is in the elementary levels where the students are achieving slightly below the district level. This is the first year they have become a Title One school with their 70% free and reduced lunch population. They also have about a 75% African American population at the school this

year. With these numbers come several challenges where the students are trying to find time to be pulled out of class to work with a reading or math coach.

Last year, every student in the graduating class of 21 attended college, and each one of them obtained a scholarship. A soon to be graduate of the school states, “I think it's given me a better understanding of how to work in groups, to know everyone's weaknesses and strengths, and how to work around challenges.” (Viadero, 2003, p. 33)

Once the observations at the two South Central Kentucky schools were complete they were put into tables and analyzed to see how many indicators were present from each intelligence.

Chapter 4: Results

Upon completion of this case study the following questions were answered. How are current teachers in the field applying the Multiple Intelligences theory in the classroom setting? Are Multiple Intelligences, other than the traditional Linguistic and Logical methods used as often in the classroom? And finally, do teachers know their students’ Multiple Intelligence strengths, and is there deliberate use of those strengths in their lessons, or is it unintentional?

“Howard Gardner’s theory of multiple intelligences requires teachers to adjust their instructional strategies in order to meet student’s individual needs” (Nolen, 2003, p. 140) and these teachers are doing just that.

In this chapter is the data collected during the six classroom observations in the two fifth grade classrooms. The data is in tables, and a separate table is shown with the number of each intelligence represented in the two classrooms.

On the first day of observation in Teacher One's classroom a copy of the Multiple Intelligences survey given to her students along with the results was given to me, (See Appendix B) and below is a breakdown of how many of each intelligence are represented in her classroom.

Teacher One's Classroom Table

Intelligence	Number
Existential	1
Interpersonal	6
Intrapersonal	9
Kinesthetic	5
Logical	0
Musical	1
Naturalistic	2
Verbal	0
Visual	6

The first day of observation was two days before the students were to leave on a week of spring break. They had an exercise on preparing for the state exam that day, and a spring party. Below is a table representing the first day's observation. Her classroom was highest in the Intrapersonal intelligence on this day which matches what the majority of her stated they were strongest. The Bodily-Kinesthetic intelligence in her classroom was the lowest even though that is where five of her students are highest. Teacher One incorporated working with a partner and singing the review questions into her lessons for the day, both of which use different Multiple Intelligences.

Teacher One's Class
Observation Table Tuesday, March 18, 2008

Intelligence	**Number of Indicators Present**
Bodily-Kinesthetic	3 out of 15
Interpersonal	7 out of 16
Intrapersonal	8 out of 16
Logical-Mathematical	6 out of 16
Musical-Rhythmical	5 out of 16

Naturalistic	4 out of 17
Verbal-Linguistic	5 out of 15
Visual-Spatial	5 out of 15

On the second day of observation, almost a month later, the students were preparing for the Kentucky mandated test, and it was only two days before testing was to begin. The students were completing a review on what they had learned in math in order to prepare for the test. Below is what the chart looks like from the second observation day. Notice that the Interpersonal and the Logical/Mathematical intelligences are tied. A parallel can be drawn here because the students were reviewing for the math portion of the exam which is why that specific intelligence was high, and they were completing the majority of that work in different grouping combinations. She had the students show her with their hands how they would do a rotation, reflection, and translation of shapes. This Kinesthetic activity was very easily incorporated into her review. Though Teacher One did use some music in her classroom, the Musical-Rhythmical intelligence was the lowest on this day.

Teacher One's Class
Observation Table Thursday, April 17, 2008

Intelligence	**Number of Indicators Present**
Bodily-Kinesthetic	9 out of 15
Interpersonal	12 out of 16
Intrapersonal	9 out of 16
Logical-Mathematical	12 out of 16
Musical-Rhythmical	5 out of 16
Naturalistic	8 out of 17
Verbal-Linguistic	10 out of 15
Visual-Spatial	11 out of 15

The third day of observation was the very next day, which left only one day before the Kentucky mandated test. The students were continuing their review of math

content, but this time it was with games instead of the packet. Teacher One made a very powerful statement during my observation. She said, "Some students can see it [the problems] better visually, some mentally, some need to draw a picture. You do what works best for you to figure out the problem."

The students were each given Goldfish crackers to snack on, and Teacher One did a probability activity with them. One side of their snack bag was heads and the other side was tails. This incorporated a Kinesthetic activity into her review, and shows that she is acknowledging that students learn in different ways, which is the power of Multiple Intelligences in her classroom.

This is the chart from the last day of observation in her class. Again Musical-Rhythmical intelligence is the lowest. But, the Visual-Spatial intelligence met a perfect 15 out of 15 indicators for the day.

Teacher One's Class
Observation Table Friday, April 18, 2008

Intelligence	Number of Indicators Present
Bodily-Kinesthetic	9 out of 15
Interpersonal	15 out of 16
Intrapersonal	9 out of 16
Logical-Mathematical	13 out of 16
Musical-Rhythmical	4 out of 16
Naturalistic	9 out of 17
Verbal-Linguistic	13 out of 15
Visual-Spatial	15 out of 15

These charts indicate that Teacher One is consistently addressing Multiple Intelligences in her classroom, and she did not spend a lot of extra time in her planning, it was just done differently.

Below is a table with the break down of the intelligences represented in Teacher Two's classroom, provided by the teacher. Like in Teacher One's classroom the majority

of his students are Intrapersonal. But, he has a very large number of students that are Kinesthetic as well as visual.

Teacher Two's Classroom Table

Intelligence	Number
Existential	6
Interpersonal	4
Intrapersonal	11
Logical	3
Musical	4
Naturalistic	8
Kinesthetic	10
Verbal	1
Visual	10

The first day of observation in his classroom was on a day they were reviewing for the Kentucky mandated test. The students got out a piece of paper and folded it to look for lines of symmetry. This is both a Visual and Kinesthetic activity that was incorporated into this review.

Looking at the table below the most indicators present were in the Interpersonal category because the students were working in groups. The least number of indicators were present in the Intrapersonal category even though that is where the majority of his students find their strength.

Teacher Two's Class
Observation Table Tuesday, April 15, 2008

Intelligence	Number of Indicators Present
Bodily-Kinesthetic	13 out of 15
Interpersonal	15 out of 16
Intrapersonal	9 out of 16
Logical-Mathematical	12 out of 16
Musical-Rhythmical	10 out of 16
Naturalistic	10 out of 17
Verbal-Linguistic	14 out of 15

Visual-Spatial	14 out of 15

The second day of observation was on a Thursday. The students had completed a block of testing in the morning, and were relaxing during the afternoon. They were watching videos from Brainpop.com, *Alvin and the Chipmunks*, as well as doing some problem solving. Teacher Two shared one very important concept without prompting, "If teachers teach everything only one way then are only about ¼ of the students are being reached." That is where Multiple Intelligences comes into play.

Below is the table from the second day of observation. Even though the students were not doing a lot of content learning because of the CATS assessment, they were still meeting a lot of the Multiple Intelligences indicators. They spent some time outdoors getting some movement and they also spent some time in groups trying to figure out which movie they wanted to watch.

Teacher Two's Class
Observation Table Thursday, April 24, 2008

Intelligence	Number of Indicators Present
Bodily-Kinesthetic	12 out of 15
Interpersonal	10 out of 16
Intrapersonal	10 out of 16
Logical-Mathematical	15 out of 16
Musical-Rhythmical	11 out of 16
Naturalistic	11 out of 17
Verbal-Linguistic	14 out of 15
Visual-Spatial	14 out of 15

The third day of observation was the following day, Friday. Again the students had had testing that morning. The first task the students were doing was drawing math cats. Mr. Thurman played the jeopardy theme music on his keyboard to quiet the students down after they completed their drawings.

As seen from the chart below all of the Logical/Mathematical indicators were met on this day. The students finished up their movie and worked as a class to solve an email Mr. Thurman had received on the history mystery of Abraham Lincoln and John F. Kennedy.

Teacher Two's Class
Observation Table Friday, April 25, 2008

Intelligence	Number of Indicators Present
Bodily-Kinesthetic	13 out of 15
Interpersonal	11 out of 16
Intrapersonal	12 out of 16
Logical-Mathematical	16 out of 16
Musical-Rhythmical	8 out of 16
Naturalistic	10 out of 17
Verbal-Linguistic	14 out of 15
Visual-Spatial	14 out of 15

Chapter 5: Discussion

This research led to several results. The results of each day were combined to find the overall total of Multiple Intelligence indicators in both Teacher One's classroom and Teacher Two's classroom.

The charts below show the total results from Teacher One's classroom. Throughout the three observations Teacher One's classroom was found to be highest in the Interpersonal intelligence. She gave several opportunities during the three observations for group work which is one reason this category is so high. The Musical intelligence had the lowest indicators present during the three observations. But, looking back at the Multiple Intelligences survey results shows that there is only one student in her classroom that has a high Musical intelligence. The survey also shows that the Intrapersonal intelligence was where the majority of Teacher One's students are strong. During the observations she met 26 out of 48 indicators in that category.

Teacher One's classroom Table —final results

Intelligence	Number of Indicators Present
Bodily-Kinesthetic	21 out of 45
Interpersonal	34 out of 48
Intrapersonal	26 out of 48
Logical-Mathematical	31 out of 48
Musical-Rhythmical	14 out of 48
Naturalistic	21 out of 51
Verbal-Linguistic	28 out of 45
Visual-Spatial	31 out of 45

The chart on observations in Teacher Two's classroom shows that the highest number of indicators was met in the Logical/Mathematical intelligence. This intelligence is high because Teacher Two teaches primarily math each day. Even though Teacher Two is a Musical learner, that intelligence had the lowest indicators present. Looking back to the Multiple Intelligences survey given shows the majority of Teacher Two's students are Interpersonal learners. During the three observations 36 of 48 Interpersonal intelligence indicators were present.

Teacher Two's classroom Table —final results

Intelligence	Number of Indicators Present
Bodily-Kinesthetic	38 out of 45
Interpersonal	36 out of 48
Intrapersonal	33 out of 48
Logical-Mathematical	43 out of 48
Musical-Rhythmical	29 out of 48
Naturalistic	31 out of 51
Verbal-Linguistic	42 out of 45
Visual-Spatial	42 out of 45

Some conclusions can be drawn from this data. Both classrooms are using strategies other than the typical Logical/Mathematical and Linguistic intelligences. These are the intelligences that are "most often associated with academic

accomplishment." (Shearer, 2004, p. 4) As seen from the observations at the three different schools, that is no longer the case. Even in the very traditional classrooms at School One and School Two the teachers realize that if they teach using only those intelligences not all of their students will understand.

Teacher One stated that she was a visual learner. Throughout the observations in her classroom, the Visual intelligence met 31 out of 45 indicators. This result indicates that she is not allowing her primary intelligence to influence how she teaches. Instead, she is teaching in a way that will meet the intelligences of her students even if she did not realize it.

Teacher Two stated in our interview that he is a Musical, Kinesthetic, and Visual learner. Each of these three indicators were high, but they were not the intelligences that met the most indicators throughout the observations, that was the Logical/Mathematical intelligence. Similar to Teacher One, Teacher Two is teaching the material so that each student's needs are met. In both these cases it can be assumed that the student's intelligences influenced the way these teachers presented the material.

In answering my research question about whether or not teachers are actually teaching to their student's intelligences or if they are just providing different opportunities for them, I found a combination of both.

> "Teachers in the field often teach to their strengths, but also try to incorporate the strengths of the majority of their students. Teachers should structure the presentation of material in a style, which engages all or most of the intelligences. When teachers center lessons on the students' needs, it optimizes learning for the

> whole class. Teachers who teach towards the Multiple Intelligences realize the benefits such as active learners and successful students. Each of the intelligences is potential in every learner and it is part of a teacher's job to nurture and help the children develop their own intelligences" (Nolen, 2003, p. 140).

It is easier to accomplish this when the teacher knows what the student's strengths are. A survey such as the one in Appendix B is a convenient way to discover what talents are in the classroom, and it also makes lesson planning easier. The most successful MI lessons were those in which teachers planned to teach content they had always taught, but now placed a greater emphasis on exploring ways in which pupils learn (Hopper, 2000). This study shows that there is importance in using Gardner's Multiple Intelligences Theory in the classroom. Students will better understand the material if it is presented in multiple ways.

It is recommended that pre-service teachers begin to change their mind set, and embark on adding in activities that focus on different intelligences more students will be reached. "By suggesting [to our students] that there's a variety of ways in which they can tackle a particular task—they began to unravel for themselves that there are different ways to learning than just having a load of content forced into them" (Hopper, 2000, p. 29).

By teaching using the Multiple Intelligences Theory a classroom is being created that is similar to the real-world and an environment where all children can be successful. A belief necessary for this change to take place is that, "All intelligences are as equally important. This is in great contrast to traditional education systems that typically place a

strong emphasis on the development and use of verbal and mathematical intelligences. Thus, the Theory of Multiple Intelligences implies that educators should recognize and teach to a broader range of talents and skills" (Fogarty, 2005, p. 13).

There are limitations to this study and how far implementation of this theory can go. Educators do not want to stray away from the curriculum that is necessary to teach, but they can get more creative in their presentation. From year to year the students in classrooms change therefore the Multiple Intelligence strengths in the classrooms change. This will lead to planning lessons differently each year to incorporate the needs and strengths of the students.

Students today are much different than students who were in school even ten years ago. They are more technologically savvy and they have had more opportunities in life; therefore we cannot treat or teach them as if they are the same person. Howard Gardner said it best,

> "If we all had exactly the same kind of mind and there was only one kind of intelligence, then we could teach everybody the same thing in the same way and assess them in the same way and that would be fair. But once we realize that people have very different kinds of minds, different kinds of strengths -- some people are good in thinking spatially, some in thinking language, others are very logical, other people need to be hands on and explore actively and try things out -- then education, which treats everybody the same way, is actually the most unfair education. Because it picks out one kind of mind, which I call the law

professor mind -- somebody who's very linguistic and logical -- and says, if you think like that, great, if you don't think like that, there's no room on the train for you” (Gardner, 2006, p. 255).

Appendix A

Classroom Climate Checklists

Performance Learning PLUS #14

Directions: To find out how effectively your classroom supports multiple intelligences, print out this page and check each item that is true for your classroom. Then notice the items that aren't checked, and find ways to integrate these into your classroom climate.

Bodily-Kinesthetic Intelligence

Classroom Furnishings

- ☿ There are a variety of furnishings suitable for kinesthetic activities.
- ☿ Seating arrangements and space are comfortable.
- ☿ Learning tools and equipment are appropriate for students' work.

Physical Environment

- ☿ Students have freedom of controlled movement at their individual desks and around the room.
- ☿ There are "hands-on/minds-on" activities.
- ☿ A variety of tactile objects are used for instructional purposes.
- ☿ There is a balance of indoor/outdoor or open-space activity.

Kinesthetic Environment

- ☿ Students have freedom of controlled movement.
- ☿ There is variety and choice of different types of movement activities.
- ☿ There is appropriate space for freedom of movement.

Sensory Environment

- ☿ The room smells attractive without excess of any particular odor.
- ☿ Aromas support learning and classroom management purposes.
- ☿ Air temperature and humidity are easily controlled and appropriate.
- ☿ A variety of materials are available for sensory stimulation.
- ☿ The environment is free of allergens and other offensive pollutants.

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Interpersonal Intelligence

Atmosphere
- There is a sense of trust between teacher and students.
- There is a sense of belonging for individuals and among students.
- Competitiveness is controlled and competitive activities are used sparingly.

Conflict Resolution
- There are established routines for conflict resolution between teacher and student.
- There are established procedures for conflict resolution among students.
- There is a sense of respect for diversity and personal differences.
- There is recognition and respect for individual opinions.

Sense of Safety
- Students perceive an absence of threat from school personnel.
- Students perceive an absence of threat from peers and other schoolmates.
- Personal property is respected and secure.
- There is a sense of psychological and social respect and absence of abuse.

Social Engagements
- Interpersonal interactions are predominantly positive.
- Students share responsibility and group cohesiveness.
- A variety of group compositions are used.
- There is flexibility in how group compositions are chosen.
- Balance among individual, pair, small-group, and large-group work is maintained.

Intrapersonal Intelligence

Privacy
- Students have a sense of personal privacy.
- Students' property, space, ideas, and bodies are safe.
- There is a sense of confidentiality.

Esteeming Environment
- Students are free from ridicule by peers and adults.
- Students are not compared to each other.
- Students' work is publicly displayed only with their consent.
- Compliments and encouragement are used more than praise.

Opportunity for Reflection
- Time for reflection is planned at different times throughout the day.
- The teacher models different kinds of personal reflection.
- The teacher models reflective thinking.
- Instructional opportunities for intrapersonal thinking are provided.

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Intrapersonal Expression
- Students have choices about whether to express their work.
- Students have choices about how to express their work.

- Intrapersonal work is not subjected to group evaluation.
- Intrapersonal reflection is an integral part of instruction.
- Students' personal reflections are respected by the teacher.

Logical-Mathematical Intelligence

Routines

- There are defined routines of activity and behavior.
- A sense of order exists in organization, storage, and management processes.
- There is a logical sense of rules, routine, and changes.

Sequence of Activities

- Activities have a meaningful sequence.
- There is a sense of "flow."
- There is a pattern of circadian* rhythms of attention and learning.
- Activities are organized around students', rather than teacher's, needs.

Time Structure

- Time usage is subject to students' needs, not external force.
- Morning and afternoon time blocks are logically organized and meaningful.
- Time usage is flexible and responsive to students' needs and interests.
- Time usage is variable with periods of "on" and "off" intensity.

References

- Students have ready access to data and information resources.
- There is consistency and dependability of resource acquisition and storage.
- Media is consistently available to students.
- There is a balance between individual and community "ownership" of resources.
- There are a variety of reference types and levels of difficulty.

*Circadian: Designating or of behavioral or physiological rhythms associated with the 24-hour cycles of the earth's rotation,
as, in man, the regular metabolic, glandular, and sleep rhythms… — Webster's New World™ College Dictionary, Third
Edition

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Musical-Rhythmic Intelligence

Acoustic Environment

- Sounds are systematically controlled and noise minimized.
- There is a balance between periods of noisy and quiet activity.
- The classroom has good acoustics; sounds are heard clearly.

Musical Environment

- Music is used in the background at appropriate times.
- A variety of music is available.
- An adequate quality of equipment for music is available.
- An attitude of respect and appreciation for various types of music is encouraged.

Music Used for Instruction

- Music is used for a variety of instructional purposes.
- Music is used as a technique for classroom control.
- There is a variety of culturally-oriented music.
- Rhythm and musical patterns are used appropriately.

Musical Expression

- The teacher expresses himself or herself musically.
- Students are free to express themselves musically.
- Music involvement is nonjudgmental.
- There is a sense of personal freedom for involvement in music.
- Music is not used as a reward, nor the lack of it as a punishment.

Naturalist Intelligence

Physical Setting

- The class setting is orderly, neat, and organized.
- Plants, wood furniture, and furnishings are present.
- Students are in proximity or visual contact with the outdoors.

Social Structures

- There are flexible groupings without social hierarchies.
- There is allowance for student initiative and freedom.
- Students take on roles representing natural, real-life responsibilities.
- Students engage in self-selected activities and learner partnering.

Organizational Patterns

- Arrangements are flexible, and settings are adaptable.
- There are a variety of functional displays.
- Students are free to determine time and resource structures.
- References, media, and technology are readily available.

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Room Appointments

- The room has bright, fresh, meaningful color.
- Pictures and posters of nature themes are displayed.
- Students create materials themselves.
- There are displays of natural animal habitats, natural realia, and collections.
- Furniture is arranged appropriately for different types of learning.
- There are arrangements and devices for categorizing and showing taxonomies.

Verbal-Linguistic Intelligence

Spoken Word

- The teacher's language is appropriate for students' levels.
- There is a match between teacher's and students' vocabularies.
- A wide variety of vocabulary is used in different contexts.

Written Word

- The environment communicates the richness of written language.
- Written language is respected by both teacher and students.
- There are a variety of written literacy opportunities.
- There is a wealth of written language resources.

Language Playfulness

- There is a respect for personal language styles and variety.
- Classroom language is used in interesting, playful, and unpredictable ways.

Other Considerations

- There is a respect for personal freedom to communicate.
- The teacher models respect for language.
- Listening is valued by both teacher and students.
- Language is used as a thinking and problem-solving tool.
- Use of words on wall graphics, etc., is limited to avoid "language pollution."
- Sounds are systematically controlled and noise is minimized.

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Visual-Spatial Intelligence

Attractive Setting

- Bright, fresh colors are visible.
- Plants and other "homey" appointments are present.
- Meaningful design elements, such as borders on visual displays, are present.

Room Colors

- The room has bright, fresh, and meaningful colors.
- Colors are stimulating but not overpowering.
- Colors are conducive to a learning atmosphere.

- Colors are supportive of students' interpersonal moods.

Light Quality

- There is a balance of natural, incandescent, and white fluorescent light.
- Light intensity can be changed.
- There are different intensities in various room areas.
- Students have the flexibility to work in different light intensities.

Spaciousness and Arrangement

- There are areas free of visual stimulation.
- There are different intensities in various room areas.
- The classroom environment appears neat and orderly.
- Furniture is arranged appropriately for different types of learning.

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Appendix B

Intermediate Version
Page 1

MULTIPLE INTELLIGENCES SURVEY

Part I

Check each statement that you think describes you well or that describes you most of the time. After you complete each section, count the number of checks, and record that total on the blank.

Section 1

_____ I enjoy grouping things that are the same.
_____ Taking care of the earth is important to me.
_____ I enjoy activities such as rock climbing and hiking.
_____ I like helping keep a flower or vegetable garden.
_____ It is important to take care of wild animals.
_____ I group things according to importance.
_____ I enjoy observing and interacting with animals.
_____ I like to recycle.
_____ I enjoy science.
_____ I spend much of my time outdoors.

_____ TOTAL for Section 1

Section 2

_____ I can easily find patterns in things.
_____ I often focus on noises around me.
_____ I can easily move my body to a beat.
_____ I play or would like to play a musical instrument.
_____ I enjoy and understand the rhythm of poetry.
_____ I often can remember things by creating a rhyme.
_____ I am often distracted if I can hear television or the radio.
_____ I enjoy many different kinds of music.
_____ Musicals are very interesting.
_____ I can remember the lyrics to songs very easily.

_____ TOTAL for Section 2

Section 3

_____ I keep my things in a certain order.
_____ I follow directions well.
_____ I enjoy solving word problems.
_____ I am not disorganized.

_____ I often do math problems in my head.
_____ I enjoy doing puzzles that really make me think.
_____ I can't begin an assignment until I understand all of the directions.
_____ I like schedules and structure.
_____ I like to read charts, tables, and graphs.
_____ If I do not understand something I quickly ask the teacher for help.

_____ TOTAL for Section 3

Section 4

_____ I wonder what life is all about.
_____ I enjoy discussing life issues.
_____ Religion is important to me.
_____ Looking at art is fun.
_____ I practice realization and/or meditation.
_____ I like to visit beautiful places and think about life.
_____ I like to read books about religion.
_____ If I understand the importance of something, it is easier for me to learn it.
_____ I believe that there is life beyond Earth.
_____ I like to study about people that lived many years ago.

_____ TOTAL for Section 4

Section 5

_____ I learn best in a group.
_____ I am happier when surrounded by many people.
_____ I like to study in groups.
_____ I enjoy talking to people on the internet.

_____ I like talking about government.
_____ I enjoy watching and listening to television and radio talk shows.
_____ I like belonging to a team.
_____ I rarely enjoy working alone.
_____ I am involved in several clubs or extracurricular activities.
_____ I think about big problems like AIDS, poverty, and war.

_____ TOTAL for Section 5

Section 6

_____ Using my hands to make things is enjoyable.
_____ I have a difficult time sitting still for long periods of time.
_____ I am very involved in outdoor games and sports.
_____ I carefully watch facial expressions.
_____ Keeping myself physically fit is important to me.
_____ I enjoy creating art.
_____ I enjoy expressing myself through dance or watching others dance.
_____ Working with tools is easy and enjoyable.
_____ I consider myself a physically active person.
_____ I learn better by doing rather than watching.

_____ TOTAL for Section 6

Section 7

_____ I read various types of materials, such as magazines, books, newspapers, poetry, etc.
_____ I remember and understand better if I take notes.
_____ I constantly correspond through e-mail or "snail mail."
_____ Others can easily understand my ideas when I explain them.
_____ Journaling is a favorite pastime of mine.

_____ I enjoy working crossword or jumble puzzles.
_____ Writing is a favorite activity of mine.
_____ Creating word games is easy for me.
_____ I can speak in a foreign language moderately well.
_____ I enjoy speaking in front of groups.

_____ TOTAL for Section 7

Section 8

_____ I care about what is right and what is wrong.
_____ If I care about something, it makes sense to me.
_____ It is important that I am fair and that others are fair.
_____ My feelings can affect how I learn.
_____ I am hurt when people are not treated fairly.
_____ I can work alone or in a group.
_____ I must know why I am doing something before I can do it.
_____ I will work very hard at something if I think it is important.
_____ I enjoy helping others.
_____ I will tell someone when they are not being fair.

_____ TOTAL for Section 8

Section 9

____ I easily picture my ideas in my mind.
____ I often rearrange and decorate my room.
____ Creating art is enjoyable.
____ Graphic organizers help me remember information better.
____ I enjoy watching people perform.
____ I enjoy using the computer to create tables, charts, and graphs.
____ I like three dimensional puzzles.
____ I like to watch music videos.
____ My memories are in the form of pictures.
____ I can easily read maps.

_____ TOTAL for Section 9

Part III

Key:
Section 1 – This reflects your *Naturalistic* strength
Section 2 – this suggests your *Musical* strength
Section 3 – This indicates your *Logical* strength
Section 4 – This illustrates your *Existential* strength
Section 5 – This shows your *Interpersonal* strength
Section 6 – This tells your *Kinesthetic* strength
Section 7 – This indicates your *Verbal* strength
Section 8 – This reflects your *Intrapersonal* strength
Section 9 – This suggests your *Visual* strength

Remember:

- Everyone has all of these intelligences.
- All intelligences are equally valuable.
- You can strengthen each intelligence.
- How you use your intelligences can change over time.

Appendix C

Honors Multiple Intelligences Interview

1. How many years have you been teaching?

2. Background information:
    a. Graduated from:
    b. Degrees you hold:

c. Husband/wife/children:
d. Schools you have taught in:
e. Anything else interesting:

3. What is your learning style?

Name	Intelligence

4. What do you know about Howard Garner?

5. Do you give a multiple intelligences survey to your students? (If so when?)

6. Do you discuss with your students how they learn? Any examples?

7. Is there a program that you use to teach material different ways to students? (Multiple Intelligences, Thoughtful Ed) Is it district wide?

8. Do you intentionally plan your instruction to meet the learning styles of your students? How so? (Example: using manipulatives for kinesthetic learners)

9. Is there anything extra that you do to meet the student's learning styles? (task rotation, authentic assessment)

10. Have you had any training/professional development on multiple intelligences? (How many hours, and when was the most recent)

Appendix D

A	Intrapersonal
B	Visual
Ca	Intrapersonal
Ce	Intrapersonal
E	Interpersonal
Hl	Intrapersonal
Hr	Visual
I	Kinesthetic
J	Kinesthetic and Naturalistic
Ky	Existential, Interpersonal, Intrapersonal, and Musical
Ks	Intrapersonal and Visual
Kl	Intrapersonal
La	Intrapersonal
Lu	Visual
M	Kinesthetic
Ol	Visual
Ow	Kinesthetic
R	Interpersonal and Intrapersonal
Sm	Interpersonal
Su	Visual
T	Kinesthetic
Wa	Interpersonal
Wm	Naturalistic

Multiple Intelligence Survey Data
Teacher One's Class

Intelligence	Number
Existential	1
Interpersonal	6
Intrapersonal	9
Kinesthetic	5
Logical	0
Musical	1
Naturalistic	2
Verbal	0
Visual	6

Multiple Intelligences Survey Data
Teacher Two's Class

Name	Strongest Intelligence(s)

Hn	Intrapersonal, Kinesthetic
K	Existential, Intrapersonal
M	Existential, Intrapersonal, Kinesthetic, Logical, Musical, Naturalistic, Visual, Verbal
Js	Naturalistic
P	Existential, Intrapersonal, Kinesthetic
Lo	Logical, Naturalistic, Visual
Je	Intrapersonal, Kinesthetic, Musical, Visual
Lu	Existential, Interpersonal, Intrapersonal, Logical, Musical, Naturalistic, Visual
N	Visual
Jo	Intrapersonal
De	Intrapersonal, Naturalistic, Visual
Al	Intrapersonal, Kinesthetic, Musical
Ca	Intrapersonal
Ch	Kinesthetic
Ju	Intrapersonal Kinesthetic, Naturalistic,
Cr	Kinesthetic, Visual
Hu	Existential, Visual
Di	Existential, Intrapersonal, Naturalistic, Visual
Bl	Interpersonal
G	Naturalistic
Ax	Interpersonal, Visual
Br	Intrapersonal, Kinesthetic, Visual
E	Kinesthetic

Intelligence	**Number**
Existential	6
Interpersonal	4
Intrapersonal	11
Logical	3
Musical	4
Naturalistic	8
Kinesthetic	10
Verbal	1
Visual	10

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