Multiple intelligences and teachers' use of the school library media center

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MULTIPLE INTELLIGENCES AND TEACHER’S USE OF THE SCHOOL LIBRARY MEDIA CENTER

by

Jacqueline Albright Pugh

A Thesis

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of
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Approved by
Assistant Professor

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ABSTRACT

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MULTIPLE INTELLIGENCES AND TEACHERS’ USE OF THE SCHOOL LIBRARY
MEDIA CENTER
2001/02
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Master of Arts in School Librarianship

Howard Gardner’s theory of Multiple Intelligences asserts that each person has a unique cognitive profile made up of several different types of intelligences. This theory is being incorporated into school curricula in lesson planning. Gardner has identified eight types of intelligences that humans can possess. In order to plan instruction that develops each of the different types of intelligences, teachers need access to a wide array of resources. In this study, surveys were sent to 150 classroom teachers from grades K-6 in each of the elementary schools in Burlington County to assess teacher’s familiarity with Multiple Intelligences and to assess teacher usage of the school media center. The results indicated the majority of the teachers surveyed were aware of Multiple Intelligences and do attempt to include lessons based on the different intelligences in their unit planning. While many teachers indicated that they utilized the media center for resources, fewer than half indicated that the materials in their media center met their needs. The majority of teachers surveyed indicated that they borrowed books and videos from their media center, while teachers indicated that they did not frequently borrow magazines, CD-ROM’s, and other media from their media centers.
The purpose of this study was to assess how teachers in Burlington County are differentiating instruction for Multiple Intelligences and to determine teacher's usage of the media center. Results indicated that the majority of teachers differentiate instruction. Although most use the media center, many were not satisfied with available materials.
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Chapter One: The Problem

Introduction and Background

Howard Gardner first introduced his theory of Multiple Intelligences in his 1983 book *Frames of Mind.* In this book, Gardner asserts that each person has a unique cognitive profile made up of several different types of intelligences. Through research in psychology, biology, and anthropology, Gardner has identified eight types of intelligences that humans can possess. These intelligences are the basis for how we learn and communicate knowledge. Gardner’s theory breaks from traditional views of intelligence that are generally based on the assumption that cognition is unitary and that humans have a single, quantifiable intelligence (Campbell, 1996).

Howard Gardner defines intelligence as “the capacity to solve problems or to fashion products that are valued in one or more cultural settings” (Gardner & Hatch, 1989, p. 2). As part of his work with Harvard University’s “Project Zero,” Gardner has conducted research on cognitive ability, organic brain pathology, special populations such as prodigies and learning disabled, and sociological differences. Through his studies, he has concluded that the traditional view of intelligence as a singular, measurable unit is based on very limited view of intelligence. Instead, Gardner asserts that humans have numerous intelligences through which people learn and communicate knowledge (Gardner, 1983). Through his studies in human intelligence, Gardner identifies eight intelligences as follows:
Verbal/Linguistic Intelligence-- The ability to master language, including the ability to express oneself rhetorically or poetically as well as using language to recall information.

Logical/Mathematical Intelligence-- The ability to detect patterns, use deductive reasoning, and logical thinking.

Spatial Intelligence-- The ability to manipulate and create mental images in order to solve problems.

Musical Intelligence-- The ability to recognize and compose musical pitches, tones, and rhythms.

Bodily/Kinesthetic Intelligence-- The ability to use mental abilities to coordinate bodily movements.

Interpersonal Intelligence-- The ability to understand the feelings and intentions of others.

Intrapersonal Intelligence-- The ability to understand one's own feelings and motivations.

Naturalist Intelligence-- The ability to understand the flora and fauna of nature (Brualdi, 1998).

Gardner has based his theory on hundreds of research studies by himself and others by using an approach that differs from traditional IQ testing (Oliver, 1997). He does not attempt to define genius or deficiency; instead, he focuses on a broader view of the skills and abilities that humans possess and can develop. When Gardner published Frames of Mind in 1983, he did not intend to write a book about education; however, his theory was quickly embraced by educators as it supports the notion that children have different strengths and weaknesses and encourages the need for children to be active participants in their own learning (Latham, 1997). The theory of Multiple Intelligences gives educators a new way to think about instruction and evaluation. Traditionally, schools in Western cultures have focused on verbal and mathematical instruction. In
light of Gardner’s research, this traditional approach limits the skills and abilities of many different learners. Gardner’s theory offers ways to remedy this problem by showing the necessity of developing many different types of skills in order to make learning more authentic for each individual.

In 1989, teacher and researcher Bruce Campbell began a study in Multiple Intelligences in his own third grade classroom. He shifted his focus of instruction towards seven learning centers that were based on the different intelligences. He attempted to research student reactions, behavior, attitudes, and abilities in this instructional model. He gathered information through daily journal writing, a classroom climate survey that was administered eighteen times during the year, and a student assessment inventory that was administered nine times during the year. Through his study, he was able to validate ten hypotheses, all of which described positive learning outcomes for the students involved (Campbell, 1990).

Another study by Gwendolyn Mettetal focused on the use of Multiple Intelligences in relation to curriculum development and instruction. The impact of a Multiple Intelligences curriculum in a large, suburban elementary school was studied. Through the use of observation, survey, and interview, the researcher addressed the question, “what are the attitudes of teachers, students, and parents towards MI in general, and toward this (school specific) curriculum in particular?” (Mettetal, 1998, p. 115). The study concluded that students, parents and teachers were positive about the concept of Multiple Intelligences. The results also concluded that the school wide implementation of programs was successful, but the distribution of Multiple Intelligence concepts across the classrooms was unequal. The study concluded that using a differentiated instruction
approach to teaching did have a positive impact upon students. The researcher did state, however, that future studies needed to be done to focus on the outcomes of student learning and standardized test scores (Mettetal, 1990).

While many educators value the theory behind Multiple Intelligences, it still lacks a practical, reliable and valid method of assessment (Shearer, 1994). In a study funded by the National Institute on Disability and Rehabilitation, the “HAPI” (Hillside Assessment of Perceived Intelligences) was created to measure the constructs of Multiple Intelligences with an “objective, psychometrically sound instrument.” The assessment was developed to obtain an estimate of individual’s abilities in each of Gardner’s identified intelligences. The results of the study showed that while the HAPI assessment did not prove to be as precise a measurement tool as a standard IQ test, it did help the researchers to gather useful and meaningful data about individual’s intellectual functioning (Shearer, 1994). The results of this study are further evidence of Gardner’s belief that intelligence is more than a single, measurable number and can be assessed in a wide variety of ways.

As Gardner’s theory gains momentum in the realm of teaching and learning, many educators are beginning to view his theory as a “paradigm shift” (Barron, 1996). Multiple Intelligences is being viewed as a new and exciting approach to helping children learn better. Gardner states that each person possesses the different types of intelligences to varying degrees and needs to develop them to their fullest extent (Gardner, 1983). In order to do this, teachers would need to differentiate their instruction in light of the different intelligences. By utilizing teaching strategies and lessons that include a variety of meaningful learning activities, the different intelligences can be developed and applied
(Fuini & Gray, 2000). When teaching to Multiple Intelligences, instruction becomes more diversified and individualized. Student choice of assignment becomes a more significant factor. When lessons are “tailor-made” for student intelligences, more materials are required for student use and study (Jay, 1991). Teachers who are attempting to differentiate instruction need to make use of the assistance of school library media specialists. Media specialists can prepare bibliographies of appropriate materials and can assist teachers in locating such materials. This involves “responsible development” of a school library collection by the media specialist (Jay, 1991). The media specialist must work collaboratively with classroom teachers in order to develop a library collection that is representative of school curriculum, student interests, and student abilities (Jay, 1991). While many of these activities are representative of the role of the media specialist, this differentiated approach to instruction may require the librarian to provide materials on a much larger scale then would be required for traditional instruction. By working together, the classroom teacher and school library media specialist can plan differentiated activities that will allow students to master information through a wide range of educational experiences that will meet the needs of many different types of learners.

Statement of the Problem

Gardner’s theory of Multiple Intelligences has had an impact on the education community. His views on intelligence are being embraced by many educators and are being incorporated into school curricula and lesson planning (Latham, 1997). In an attempt to meet the learning needs of all students, teachers are now finding ways to
differentiate instruction based on the eight types of intelligences that Gardner defines. This is a major shift from the traditional form of Western education that tends to focus on verbal/linguistic and mathematical learning.

Delivering instruction to meet the needs of different types of learners involves much planning and preparation on the part of the classroom teacher. The teacher must provide a wide variety of resources and materials for students to utilize. Gardner believes that in order for education to be most effective and meaningful for students, topics of study must be delved into deeply. This may require teachers to look beyond the materials present in their own classrooms in order to support their instruction. The school library media center could play a pivotal role in the success of material selection and accessibility. Media centers have evolved from merely providing supplemental print materials to providing materials in all formats that are “central to the instructional and learning process for all students” (Jay, 1991, p. 13). This study will focus on how and if classroom teachers are differentiating instruction for Multiple Intelligences and how these teachers are accessing the school library media center for materials to enhance and support their lessons.

Goals and Objectives

The purpose of this research was to first discuss Gardner’s theory of Multiple Intelligences and to review related research to assess the validity of the theory and to discuss how it applies to a public school classroom setting. The next goal of the research was to investigate if and how classroom teachers in Burlington County are applying this theory to their lesson planning and if so, how they are utilizing the school library media
center as a resource for their lessons. Comparisons were made between library usage of teachers who differentiate instruction and teachers who do not. The overriding objective of the study was to assess if teachers are utilizing the school library media center and are satisfied with the types of materials available for their differentiated instruction.

Theoretical Framework

In the 1996 article, "Multiple Intelligences, Paradigms, and the School Library Media Specialist," Daniel Barron notes that although programs based on Multiple Intelligences are being implemented in schools, school media centers have not been included in reform efforts. He states that through extensive research he was only able to locate one position paper that discussed the role of the library in relationship to Multiple Intelligences. The paper that he noted, "School Library Media Specialist as Knowledge Navigator," supports teaching to Multiple Intelligences. The authors state "the use of multiple modalities helps foster holistic thinking" (Burnett & McNally, 1994, p. 92). Since each of the different intelligences can be used a "means of acquiring information," school librarians need to be aware of the theory of Multiple Intelligences and contemplate what types of practical strategies they must incorporate into their media center to support this theory.

Although little research is available that directly concerns the role of the school library media center in relation to Multiple Intelligences, Barron states that the media center and media specialists have a "potential role" in adopting this approach to educational reform (Barron, 1996). Burnett also states that as schools and teachers integrate aspects of Multiple Intelligences into planning, the school library media center
needs to "encourage the appreciation of Multiple Intelligences and value communication and collaboration" (Burnett & McNally, 1994, p. 96). This may involve changes on the part of the school library media specialist. Media specialists may need to approach their collaborative efforts with teachers differently in order to provide materials to meet the needs of students with different intelligences.

Assumptions

Several assumptions must be made in order to support the stated hypotheses. First, in order to create instruction based on developing Multiple Intelligences, access to more resources will be necessary as students will delve more deeply into areas of study. Second, instruction will be more individualized; therefore teachers will need to provide more materials. Third, one of the roles of the school library media center is to provide access to materials for classroom teachers. Fourth, teachers use the school library media center as a resource and view it as an integral part of their curriculum delivery.

Hypotheses

The hypotheses to be supported or unsupported through the subsequent research are as follows:

1. Howard Gardner’s Theory of Multiple Intelligences has an impact upon the way teachers differentiate instruction to meet the needs of all learners.

2. Teachers who integrate aspects of Multiple Intelligences into their lesson planning will need access to a wider range of materials, both print and non-print.
3. School library media specialists can play an integral role in helping teachers locate, select and acquire materials to use for differentiated instruction.

4. School library media specialists may need to examine their collection development and collaborative efforts to ensure that they are meeting the needs of teachers who are integrating aspects of Multiple Intelligence theory into their lesson planning.

Definition of Terms

Theory of Multiple Intelligences-- a cross-cultural, expanded concept of intelligence; includes such areas as linguistics, music, logical-mathematical, spatial, body-kinesthetic and personal, as researched by Howard Gardner (Ornstein, 1998).

Differentiated instruction-- presentation of classroom lessons using a variety of approaches and materials to ensure that students, despite differing abilities, will be able to learn the required content (Jay, 1991).

Learners-- students in the classroom who are the recipients of instruction.

School library media center-- an area of the school devoted to providing materials in all formats central to the instructional and learning process for all students (Jay, 1991).

School library media specialist-- specialists within a school who acquire and use materials in all formats, who teach and partner with classroom teachers to construct curriculum units and instruct students and staff in use of library materials (Jay, 1991).

Curriculum-- A plan for action that includes strategies for achieving desired goals or ends within a field of study that deals with the experiences of the learners (Ornstein, 1998).

Materials-- informational resources, both print and non-print, that a learner can use to obtain information.

Teacher-- classroom teacher responsible for delivering curricular instruction to students in the school setting.
Lesson planning-- the development of classroom instruction and activities to support the objectives of the curriculum.

Collection development-- the process of identifying the strengths and weaknesses of a library's materials collection to meet the needs of a service population (Evans, 1995).

Collaboration-- working cooperatively with classroom teachers to jointly plan for student instruction (Wasman, 1998).

Organization of Remainder of Study

Chapter Two of this study discusses appropriate existing literature in this field of study. The chapter sets the historical context and assesses previous studies in the area of Multiple Intelligences. Chapter Three describes the methodology selected to research how and if teachers are differentiating instruction and how their use of the school library media center relates to their style of instructional planning. Chapter Four presents and analyzes the data collected. Chapter Five includes a summary, conclusions drawn from the collected data, and recommendations based on the analysis of data.
Chapter Two: The Literature Review

Introduction

Howard Gardner, a researcher at Harvard University, first published his theory of Multiple Intelligences in the 1983 book *Frames of Mind.* In this work, he transformed the traditional question about intelligence from “How smart are you?” to “How are you smart?” (Oliver, 1997). Gardner’s interest in researching different types of intelligences came about as a result of his work with brain-damaged individuals and with children at Harvard’s Graduate School of Education. Through his studies, he originally identified seven types of intelligences: verbal, musical, logical-mathematical, spatial, body-kinesthetic, interpersonal and intrapersonal. Gardner eventually added an eighth type of intelligence, that of a “naturalist,” and is researching a ninth intelligence based on spirituality. Gardner states that these intelligences are loosely associated and that the cluster of abilities that comprises each of these intelligences can be used as a means of acquiring information (Burnett, 1994). While Gardner was attempting to challenge the view of intelligence as single capacity, he was “unprepared” for the large and “mostly positive” response to his theory among educators (Gardner, 1995). As one researcher stated, this is “perhaps in large part because he put a name to what many teachers have known all along—students have different capacities for learning in different areas” (Latham, 1997, p. 94).
Historical Context

The concept of intelligence has existed for many centuries. Until this century, the word “intelligence” has been “used primarily by ordinary individuals in an effort to describe their own mental powers as well as those of other persons” (Gardner, 1998, p. 1). In the past, intelligence has often been viewed as a unitary, measurable concept that humans are born with (Holmes, 1999). This view traces back to the early 1900’s when many influential psychologists delved into the field of human intelligence. Alfred Binet created the first intelligence test in 1916 in order to measure human performance on sets of items ranging from sensory discrimination to vocabulary knowledge (Gardner, 1990). This test was first used for at-risk Parisian elementary school students, but was made popular in the United States through use by researchers at Stanford University. These tests, commonly referred to as “IQ tests,” had become the norm for measurement of intelligence in American society and other parts of the world by the 1930’s (Gardner, 1998, p. 2). By the 1950’s, theories of intelligence were taken for granted as part of mainstreamed society.

In the 1970’s there was renewed interest in the field of intelligence. Researchers such as Robert Sternberg studied the area of information processing, leading to a “rediscovery in the centrality of intelligence” (Gardner, 1990). In 1972, Howard Gardner became co-director of Project Zero, a research group at the Harvard Graduate School of Education (Project Zero, 2001). Project Zero was founded in 1967 to study and improve education and the arts. Through his research with Project Zero, Gardner became increasingly dissatisfied with the prevailing view of intelligence as a single, measurable quality (Burnett, 1994). He examined brain research, different cultures, prodigies, “idiot savants” and autistic people and came to the conclusion that the traditional concept of
intelligence known as “IQ” is based on a very limited view of intelligence (Holmes, 1999). He also was disturbed by the overall emphasis on linguistic symbolization and logical-mathematical symbolization in schools and in society (Gardner 1990). The combination of these factors led Gardner to propose the existence of numerous human intelligences. Gardner defined intelligence as the following:

- The ability to solve problems that one encounters in real life.
- The ability to generate new problems to solve.
- The ability to make something or offer a service that is valued within one’s own culture (Campbell, 1996, p. xv).

Gardner states that his research is a psychologically-based claim about how the mind works and was not developed with specific educational goals in mind. He claims that there is a “gulf” between psychology and education; therefore, the theory of Multiple Intelligences was not meant to be an educational prescription (Gardner, 1995). Nonetheless, since the publication of Frames of Mind in 1983, educators began applying the theory of Multiple Intelligences in their classrooms (Campbell, 1997). The reasoning behind this may be that the theory resonates with what teachers know about good teaching, specifically that children have different strengths and interests and need to be active participants in their own learning (Oliver, 1997). Individual teachers and entire schools have implemented aspects of Multiple Intelligences into their planning and curricula. Gardner himself states that there is no one single approach to education based on Multiple Intelligences theory; instead, he believes that educators are to decide for themselves the best way to use the theory in their classrooms (Gardner, 1995).

Gardner states that implementing aspects of Multiple Intelligence into instruction requires an emphasis on teaching for understanding while allowing students to delve deeply into topics in order for them to make use of their knowledge in new situations.
Educators who accept Gardner’s theory need to think of all seven intelligences as being equally important since Gardner states that all are needed to productively function in society (Brualdi, 1998). This requires teachers to recognize and teach to a broader range of skills. Teachers also need to structure their presentation of material in ways that engage different intelligences in order to maximize instruction for all learners. This facilitates a deeper understanding of subject matter for students (Brualdi, 1998).

Implementing the theory of Multiple Intelligences into classroom instruction often requires the personalization of education. Gardner believes that this is one of the main reasons that the theory has attracted the educational community (Gardner 1995). Multiple Intelligences endorses the idea that individual strengths and weaknesses must be taken into consideration in the realm of education. Personalization of instruction allows material to be presented in such a way that each child has the opportunity to master concepts and to apply what they have learned (Gardner, 1995). As assignments become more individualized, adequate materials must be available for student use. Classroom teachers who attempt to differentiate instruction must make use of “all the assistance they can get from their school library media teachers” (Jay, 1991, p. 3).

Review of previous studies

The majority of the studies in the field of Multiple Intelligences originate from Project Zero at Harvard University. In 1984, teachers and researchers from Project Zero began to assess early childhood and elementary students for Multiple Intelligences. This project evolved into “Project Spectrum.” Eventually, the project developed a battery of
fifteen activities to explore Multiple Intelligences. The purpose of this research was to apply Gardner’s theory to better understand students’ cognitive diversity in order to eventually enhance educational practices. The researchers found that children as young as four years of age exhibited different configurations of intelligence. Through this testing, they found that children demonstrate a wide range of strengths and weaknesses across all seven intelligences (Gray, 1994). Researchers concluded that Multiple Intelligences theory can help teachers and students identify cognitive strengths in order to best nurture individual abilities.

Project SUMIT is another study from Harvard University that focuses on the use of Multiple Intelligence theory in schools. Project SUMIT was a three-year national investigation that began in January 1997. The project sought to identify, promote, and document effective implementation of Multiple Intelligence Theory. Research was based upon 41 schools that were identified as applying the theory of Multiple Intelligences for three or more years. Each of these schools also associates the theory with improved outcomes for their students. Researchers conducted phone interviews with principals, teachers, and administrators to survey how the schools integrated Multiple Intelligences into their curriculum, means of assessment, professional development, and outcomes within their schools. Through this study, researchers reached the conclusion that the schools they studied viewed Multiple Intelligences as the prominent influence in improved test scores, improved discipline, improved parent participation, and improvements for students with learning disabilities (Project SUMIT, 1999). The researchers plan to produce a guide book for teachers based on their studies as well as case studies for teacher use.
One example of a school studied by Project SUMIT is the Dover School in Tampa, Florida. This K-5 elementary school began applying aspects of Multiple Intelligences in 1990. Teachers attempt to draw on students’ different strengths in order to maximize instruction. Teachers are also given one day a month to work in teams in order to develop curriculum units based on the tenets of Multiple Intelligences. Researchers from Project SUMIT found that since the school had implemented this new approach, disciplinary referral dropped from over 400 to 13 students, student attendance in the school had improved, the number of children identified as gifted and talented increased, and standardized test scores moved from the 30th percentile to the 50th percentile and above (Project SUMIT, 1999).

Very few relevant, quantifiable studies exist concerning Multiple Intelligences outside of the work being done through Project Zero. A 1996 study of 129 middle school students who were involved in a curriculum based on Multiple Intelligences activities found that student’s math and reading scores had increased substantially since implementation of the new curriculum; however, since no control group was used for comparison, general conclusions can not be made from the test scores (Latham, 1997).

In 1989, teacher and researcher Bruce Campbell began a study in Multiple Intelligences in his own third grade classroom. He created seven learning centers based upon Gardner’s seven intelligences. Campbell allowed students to spend time at the centers daily in order to learn the academic concepts being taught in different ways. He attempted to research student reactions, behavior, attitudes, and abilities in this instructional model. Campbell gathered information through daily journal writing, a classroom climate survey that was administered eighteen times during the year, and a
student assessment inventory that was administered nine times during the year. Campbell made observations based upon this information, then tested and attempted to verify each hypothesis that he stated. At the conclusion of his one-year study, Campbell found ten positive outcomes, including increased multi-modal skills, improved attitudes, and general academic gains. He stated that he planned to continue his research throughout the subsequent school year to test if above-normal academic gains were made as a result of the program (Campbell, 1990).

Another study by a speech pathologist and a preschool teacher was completed in New York in order to test if language-delayed preschoolers would benefit from a Multiple Intelligences approach to instruction. The teachers carefully planned instruction in order to incorporate the different types of intelligences. Since the preschoolers were speech delayed, verbal-linguistic activities were de-emphasized and lessons were taught to their more evident intelligences while indirectly addressing language skills. Twelve students were studied over the course of four months. At the conclusion of the study, the teachers found evidence that students were able to transfer learning to new situations. They also noted improvements in their language ability, attention spans, group interaction, and self-esteem. The results of this study were compiled by observation, informal assessment, and formal assessment. The researchers found that “teaching to multiple intelligences was a positive, respectful way to understand all individuals” (Merrefield, 1997, p. 61). The researchers involved also collaborated with five other classrooms within their school setting; however, they found the best results with their original preschool study. It should also be noted that since no control group was used in the study, it is difficult to assess
whether or not students would have made similar progress using a different approach to instruction.

Gwendolyn Mettetal, a professor at Indiana University, published a study in 1998 that focused on attitudes towards Multiple Intelligences curriculum in a large suburban elementary school. Her focus was on a K-5 elementary school of 520 students in north central Indiana. This school implemented a Multiple Intelligences curriculum during the 1994-1995 school year. Throughout the spring of 1995, observations, interviews, and surveys were completed to assess parent and teacher views on the new curriculum. The researchers took a qualitative approach to the study, which allowed them to be participants and observers in the school. The researchers spent over 23 hours in informal interviews with students and staff and sent out 400 surveys to parents. The response rate to the survey was 61 out of 400. The researchers summarized three main points that came about from the analysis of their research. First, they found that students, teachers and parents were very positive concerning the concept of Multiple Intelligences. Second, the researchers found positive attitudes towards the way in which the curriculum had been implemented throughout the school. Third, they found that implementation of the curriculum was uneven across the different classrooms in the school. The researchers concluded that teaching using the Multiple Intelligences theory can have a positive impact upon students and that further study needed to be done in order to measure the impact of the curriculum upon student learning (Mettetal, 1998). In order to build the foundations for their study, the researchers included thorough information about the school, the students, population trends, socio-economic factors, and background on past instructional practices within the school. While the researchers listed how many students,
parents, teachers and classrooms they interviewed or observed, they did not include the
total number of teachers, parents, or classrooms in the school, which makes it difficult to
judge whether or not the numbers used were a sufficient sample for the population. It
was also noted in the study that the response rate for parent surveys was very low;
although the researchers tried to validate survey answers by comparing them to parent
interview answers, results could be biased if the same parents interviewed were the ones
who completed the survey.

While most research supports applying the theory of Multiple Intelligences in
educational settings, some researchers feel that it lacks a practical, reliable and valid
method of assessment (Shearer, 1994). In a study funded by the National Institute on
Disability and Rehabilitation, the “HAPI” (Hillside Assessment of Perceived
Intelligences) was created to measure the constructs of Multiple Intelligences with an
“objective, psychometrically sound instrument.” The assessment was developed to
obtain an estimate of individual’s abilities in each of Gardner’s identified intelligences.
The researchers studied 338 students and 45 adult volunteers. They were tested using
“HAPI,” a multiple-choice questionnaire that has 106 items. It was originally designed
for use with brain-injured individuals to assess individual’s developed intellectual,
problem-solving, and productive/creative abilities. The results of the study showed that
while the HAPI assessment did not prove to be as precise a measurement tool as a
standard IQ test, it did help the researchers to gather useful and meaningful data about
individual’s intellectual functioning (Shearer, 1994). The results of this study are further
evidence of Gardner’s belief that intelligence is more than a single, measurable number
and can be assessed in a wide variety of ways. The researchers in this study took several
steps to assess the validity and reliability of their instrument. In addition to the HAPI, they administered a battery of individual and group tests to 56 of the participants. Researchers also compared the HAPI scale scores for subjects in groups that should differ from another group on HAPI scale scores due to previous training or knowledge. The researchers state that the HAPI is only a "reasonable estimate" of skill and ability and state that their instrument may not be a precise measurement tool.

*Multiple Intelligences and the School Media Center*

In his article "Multiple Intelligences, Paradigms, and the School Media Specialist," Daniel Barron asserts that Gardner's theory is an exciting approach to helping students learn better. He also states that school library media programs have a potential role in contributing to the success of Multiple Intelligences programs in schools. Barron was able to locate only one position paper on Multiple Intelligences and the school media center and was not able to locate any relevant research that combined Multiple Intelligences and the library (Barron, 1996). The one position paper mentioned was published in 1994 by Kathleen Burnett and Jane McNally. This paper, entitled "School Library Media Specialist as Knowledge Navigator," states that "practicing library media specialists will need to be brought up to speed on the implications of Multiple Intelligences theory" (Burnett & McNally, 1994, p. 95). The authors of this article state that the role of the school library media center is to assist students in acquiring information. Since the different intelligences can be used a means of acquiring information, it is imperative that media specialists are trained in practical strategies for incorporating the theory into the school library media center.
Traci Haines, a graduate student at Rowan University, completed a study concerning how library collections potentially supported Multiple Intelligences. The study focused around the naturalist intelligence, a newly identified intelligence that Gardner has added since his publication of *Frames of Mind*. Haines described the naturalist intelligence as the ability to recognize and discriminate different concepts in nature. In her study, Haines assessed the Dewey Decimal classification 500 sections of two elementary school media centers in Burlington County, New Jersey to determine if their science collections were sufficient to assist the naturalist learner. Haines used a randomly selected sample of books in each media center and assessed them for material, categorization, bibliographies, inclusion of Websites and experiments, and glossaries. Through her study she found that the books in each of the libraries studied did not have the necessary characteristics to expand the knowledge of the naturalist learner. Haines did note in her study that socio-economic factors within the selected media centers may have been an influencing factor on her study. She also notes that copyright date may be relevant to whether or not books meet the needs of the naturalist learner (Haines, 2001).

Summary

In summary, there is little existing relevant research on Multiple Intelligences and the school library media center. However, the existing research suggests that the media center could have a potential role in differentiating instruction for Multiple Intelligences. The remainder of this study examines elementary teacher's use of Multiple Intelligence theory in their classrooms and classroom teacher's usage of the school library media
center. This was done through use of an exploratory experience survey to gather the experiences of school media specialists within Burlington County.
Chapter Three: The Methodology

Introduction

Since Howard Gardner first published his theory of Multiple Intelligences in the 1983 book *Frames of Mind*, the theory has gained momentum among educators as an approach to creating classroom instruction. The theory of Multiple Intelligences is being incorporated into school curricula and lesson planning (Latham, 1997). Teachers are finding ways to differentiate instruction based on the different types of intelligences. In order for teachers to prepare meaningful classroom lessons, they must provide a wide variety of resources and materials for student use. This may require teachers to look beyond their own materials and seek out the assistance of the school library media specialist to locate appropriate resources. This study focuses on the potential role that the school library media specialist could play in supporting classroom teachers who are differentiating instruction for Multiple Intelligences.

The purpose of this study was to investigate if and how classroom teachers in Burlington County are applying the theory of Multiple Intelligences to their lesson planning, and, if so, how they are using the school library media center as a resource. The main objective of the study was to assess the perceived need for school library media specialists’ involvement in providing materials to support differentiated instruction.
Description of Methodology

In order to study how and if teachers are differentiating instruction for Multiple Intelligences and if they are using the school library media center to obtain necessary materials for implementation, a survey was taken through means of a self-administered questionnaire. This method was chosen because it allowed the researcher to “describe characteristics of the population being studied, estimate proportions in the population, make specific predictions, and test associational relationships” in relation to Multiple Intelligences and teachers’ library usage (Powell, 1999, p. 61). This method also allowed for anonymity, allowed the study to be completed within the required time limits, was economical, and avoided interviewer bias (Powell, 1999).

The questions included in the survey were constructed to assess how and if elementary school teachers in Burlington County were applying the theory of Multiple Intelligences to their classroom instruction. The survey also attempted to find out whether or not teachers were accessing the school library media center for different types of materials needed for their lessons. The questionnaire was sent randomly to teachers in each of the ninety elementary schools in Burlington County, New Jersey.

The study was limited to elementary classroom teachers who were directly responsible for implementation of grade level curriculum. The purpose for this limitation was that grade level teachers are the professionals ultimately responsible for creating lesson plans that instruct their students in stated areas of proficiency. Classroom teachers are also responsible for compiling materials for student use, and many have the option of accessing materials from media centers within their own schools.
Design of the Study

This study was designed to survey a representative sample of elementary classroom teachers from each elementary school in Burlington County, New Jersey. The study was designed to provide a picture of how teachers in Burlington County are integrating Multiple Intelligences instruction into their classrooms, if they are utilizing the services of their school media specialist, and whether or not they are accessing available resources from the school library media center to assist in their instruction.

Sample and Population

The population used for this study was elementary classroom teachers, grades kindergarten through sixth, in public schools in Burlington County. According to the Burlington County Superintendent of Schools' online directory, there are currently over 2,400 elementary teachers in public schools in the county. Due to the large number of teachers this population encompasses, the study was narrowed to a sampling frame of the ninety elementary schools in the county in order to make the study time-cost effective.

Using the Burlington County Superintendent of Schools Public School Directory, each elementary school in the county was assigned a random number from the RAND Corporation's *A Million Random Digits* table (Powell, 1999, p. 72). Surveys were sent to teachers in grade levels kindergarten through sixth by randomly assigned grade levels at each elementary school. Surveys were sent by mail and addressed to the lead teacher of the assigned grade at each elementary school.
Based on the table entitled *Determining Sample Size for Research Activities*, the sample size needed for a population of ninety was seventy-three (Powell, 1999, p. 80). In order to best secure a return rate of this number, the researcher sent out 150 surveys. One survey was sent to each elementary school in the county, which equaled ninety. The remaining sixty surveys were sent to schools selected randomly, meaning that more than one response may have been received from the same elementary school. Addresses for the schools were taken from an online listing of public schools in South Jersey (Courier Post Online, 2001).

**Instrumentation**

A survey was compiled which consisted of sixteen questions focusing on Multiple Intelligences, planning for instruction, and use of the school library media center. Questions one and two asked teachers to circle or check appropriate responses to questions. Questions three through eleven on the survey required the teacher to respond to answers by circling responses on a scale of one to five, with one being equivalent to an answer of “never,” two being equivalent to “seldom,” three being equivalent to “sometimes,” four being equivalent to “often,” and five being equivalent to “very often.” Questions twelve and thirteen asked the teacher to check the appropriate response. Questions fourteen through sixteen were open-ended questions. Space was allotted for written replies.

The survey was written, then pre-tested by two classroom teachers who were not part of the study. The survey was revised for clarity based upon the pre-test.
recommendations. The survey was then sent to 150 teachers along with a cover letter. A self addressed stamped envelope was included for returning the survey.

Questions one and two of the survey focused specifically on teachers’ familiarity and exposure to Multiple Intelligences. Teachers were asked if they were familiar with the theory and what types of exposure they have had to Multiple Intelligences. Questions three and four focused on how often teachers planned differentiated instruction and how they included each of the intelligences in their lesson planning. Questions five through eleven focused on the teachers’ use of the school library media center and the interactions the classroom teacher had with the school library media specialist. Questions twelve and thirteen asked teachers to identify the grade level taught and how long they have been in the profession. Lastly, three open-ended questions were included. Question fourteen asked teachers to describe the role of the school library media center in their lesson planning. Question fifteen asked teachers to describe the benefits of diversifying instruction. Question sixteen asked teachers to list the types of materials that would be most useful for them in the media center. A copy of the survey is included in Appendix B.

Respondents were told in the cover letter that participation in the survey was voluntary. It was also stated that teachers did not need to respond to every question and that all responses were anonymous. A copy of the cover letter is included in Appendix A.

_DATA COLLECTION_

After the surveys were completed and returned by the sample population of classroom teachers, the data was collected from the returned responses. Using SPSS software, data
was inputted and a descriptive analysis was completed in order to summarize and describe responses to survey questions on a percentage basis. Narrative questions were analyzed, then grouped and counted by topic.

Data Analysis

The responses from returned questionnaires were compiled and analyzed. Responses were tabulated on a percentage basis, and findings were also reported on a narrative basis. Percentages of responses were computed and a one-way ANOVA was completed to show possible relationships between questions three, six and eleven. Tables and figures were constructed to generalize findings from the sample population in order to show the results of the surveys and to help support the research hypothesis. The findings are presented in the following chapter.
Chapter 4: Presentation and Analysis of the Data

Results of the Survey

A total of 150 surveys were sent to teachers in every elementary school in Burlington County. There were 68 surveys returned, giving a response rate of 45%. The returned surveys represented 25 of the 29 districts in the county as well as 48 of the 90 schools. The teachers surveyed represented grades kindergarten through sixth, with the highest number of respondents being third grade teachers. Table 1 shows the number and percentage of respondents by grade level taught:

Table 1

<table>
<thead>
<tr>
<th>Grade</th>
<th>%</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>K</td>
<td>13.2</td>
<td>9</td>
</tr>
<tr>
<td>1</td>
<td>10.3</td>
<td>7</td>
</tr>
<tr>
<td>2</td>
<td>8.8</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>27.9</td>
<td>19</td>
</tr>
<tr>
<td>4</td>
<td>16.2</td>
<td>11</td>
</tr>
<tr>
<td>5</td>
<td>7.3</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>16.2</td>
<td>11</td>
</tr>
</tbody>
</table>

Of the 65 respondents, 11.9% responded that they have been in the teaching profession for one to three years, 23.9% have been teaching for four to six years, 16.4%
have seven to nine years experience, while 47.8% of respondents have taught for more than ten years.

*Teachers and Multiple Intelligences*

The first set of questions included on the survey dealt with the theory of Multiple Intelligences, teachers familiarity and exposure with the theory, and ways in which teachers differentiate instruction for the different types of intelligences. Figure 1 shows teachers responses to the question, “Are you familiar with Gardner’s theory of Multiple Intelligences?” Over fifty percent of the respondents to this question answered that they were “very” or “extremely” familiar with the theory of Multiple Intelligences, while a total of 18.4% responded that they were not at all or vaguely familiar with the theory. A total of 81.6% of the respondents indicated some familiarity.

![Figure 1. Teachers familiarity with Multiple Intelligences.](image)
Question two asked teachers to identify what types of exposure they have had to Gardner’s theory of Multiple Intelligences. Respondents were asked to check all that apply and a line was included to specify other means of exposure teachers may have had in addition to the experiences listed. The number of responses is displayed in Table 2. Four respondents wrote answers in the category of “other.” Responses included two teachers who have had colleague conversations about Multiple Intelligences, one teacher who had taught a course on Multiple Intelligences as an adjunct professor, and lastly a respondent who was privately instructed in the theory by a colleague who taught a Multiple Intelligences workshop.

Table 2

*Teacher's Exposure to Multiple Intelligences*

<table>
<thead>
<tr>
<th>Exposure</th>
<th># of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Journal reading</td>
<td>35</td>
</tr>
<tr>
<td>Inservice</td>
<td>20</td>
</tr>
<tr>
<td>Workshop</td>
<td>18</td>
</tr>
<tr>
<td>Coursework</td>
<td>39</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
</tr>
<tr>
<td>No Exposure</td>
<td>6</td>
</tr>
</tbody>
</table>

*Note.* Total does not equal 68 as respondents were able to check more than one answer.
The next series of questions focused on the different types of intelligences and whether or not teachers were differentiating instruction when planning a curricular unit. Table 3 shows the responses by percentage to the question, “how often do you attempt to create instruction to meet the needs of different types of learners?” as well as questions on each of the different types of intelligences.

Table 3

Percentages of Teachers Differentiating Instruction (n=68)

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Seldom</th>
<th>Sometimes</th>
<th>Often</th>
<th>Very Often</th>
<th>No Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create Dif. Instr.</td>
<td>0</td>
<td>0</td>
<td>20.9</td>
<td>46.3</td>
<td>31.3</td>
<td>1.5</td>
</tr>
<tr>
<td>Verbal</td>
<td>0</td>
<td>0</td>
<td>13.4</td>
<td>31.3</td>
<td>55.2</td>
<td>0</td>
</tr>
<tr>
<td>Mathematic</td>
<td>0</td>
<td>5.1</td>
<td>28.4</td>
<td>44.8</td>
<td>20.9</td>
<td>0</td>
</tr>
<tr>
<td>Spatial</td>
<td>0</td>
<td>4.5</td>
<td>32.8</td>
<td>46.3</td>
<td>12.3</td>
<td>3.0</td>
</tr>
<tr>
<td>Kinesthetic</td>
<td>0</td>
<td>13.4</td>
<td>32.8</td>
<td>38.8</td>
<td>14.9</td>
<td>0</td>
</tr>
<tr>
<td>Musical</td>
<td>6.0</td>
<td>25.4</td>
<td>38.8</td>
<td>23.9</td>
<td>6.0</td>
<td>0</td>
</tr>
<tr>
<td>Interpersonal</td>
<td>0</td>
<td>3.0</td>
<td>17.9</td>
<td>49.3</td>
<td>28.4</td>
<td>0</td>
</tr>
<tr>
<td>Intrapersonal</td>
<td>0</td>
<td>3.0</td>
<td>29.9</td>
<td>50.7</td>
<td>14.9</td>
<td>1.5</td>
</tr>
</tbody>
</table>

Teachers and the School Library Media Center

Questions five through eleven on the survey focused specifically on the teacher’s use of the school library media center and the ways in which teachers utilize the school library media specialist for their lesson planning. These questions asked teachers to
identify how often they use the media center for materials, how often they ask the media specialist to assist in locating materials or teaching specific skill lessons, how often they discuss units of study or plan cooperative lessons with their media specialist, and whether or not they believed that the materials in their school library media center were sufficient for their needs. Responses to these questions are listed by percentage in Table 4.

Table 4

*Teacher's Use of the School Media Center and the School Media Specialist by Percentage (n=68)*

<table>
<thead>
<tr>
<th>Activity</th>
<th>Never</th>
<th>Seldom</th>
<th>Sometimes</th>
<th>Often</th>
<th>Very Often</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use media cen.</td>
<td>9.0</td>
<td>20.9</td>
<td>16.4</td>
<td>26.9</td>
<td>26.9</td>
</tr>
<tr>
<td>Ask media spec.</td>
<td>13.4</td>
<td>14.9</td>
<td>32.8</td>
<td>20.9</td>
<td>17.9</td>
</tr>
<tr>
<td>Discuss units</td>
<td>20.9</td>
<td>19.4</td>
<td>41.8</td>
<td>13.4</td>
<td>4.5</td>
</tr>
<tr>
<td>Plan lessons</td>
<td>47.8</td>
<td>26.9</td>
<td>19.4</td>
<td>6.0</td>
<td>0</td>
</tr>
<tr>
<td>Teach skills</td>
<td>40.3</td>
<td>19.4</td>
<td>32.6</td>
<td>6.0</td>
<td>1.5</td>
</tr>
<tr>
<td>Mat. meet needs</td>
<td>13.4</td>
<td>17.9</td>
<td>31.3</td>
<td>23.9</td>
<td>13.4</td>
</tr>
</tbody>
</table>

Teachers were also asked to rate how often they borrow specific types of materials from the media center. The responses relating to the borrowing habits of teachers are listed by percentage in Table 5.
Table 5

*Percentages of Materials Borrowed By Teachers From the Media Center (n=68)*

<table>
<thead>
<tr>
<th>Material</th>
<th>Never</th>
<th>Seldom</th>
<th>Sometimes</th>
<th>Often</th>
<th>Very Often</th>
</tr>
</thead>
<tbody>
<tr>
<td>Books</td>
<td>8.7</td>
<td>7.2</td>
<td>25.3</td>
<td>27.2</td>
<td>31.4</td>
</tr>
<tr>
<td>Magazines</td>
<td>26.2</td>
<td>32.3</td>
<td>30.8</td>
<td>6.2</td>
<td>4.6</td>
</tr>
<tr>
<td>CD-ROM's</td>
<td>43.1</td>
<td>35.4</td>
<td>15.4</td>
<td>4.6</td>
<td>1.5</td>
</tr>
<tr>
<td>Videos</td>
<td>16.9</td>
<td>1.5</td>
<td>29.2</td>
<td>29.2</td>
<td>23.1</td>
</tr>
<tr>
<td>Other media</td>
<td>36.9</td>
<td>32.3</td>
<td>10.8</td>
<td>13.8</td>
<td>6.2</td>
</tr>
</tbody>
</table>

*Correlations Between Data*

Using SPSS software, a one-way ANOVA was used to determine if there were any significant correlations in responses among specific questions on the survey. In a comparison between the question dealing with familiarity with Multiple Intelligences and teacher satisfaction with the materials in the media center, no significant difference was noted as $p<.05$ when teachers responses to question one were used as the independent variable and responses to question eleven were used as the dependent variable. In a comparison between question three, which asked how often teachers attempt to differentiate instruction, and question six, which asked how often the teacher asks the media specialist to locate materials, again no significant difference was noted. Last, in a
comparison between question three and question eleven, no significant differences were noted in relation to differentiating instruction and satisfaction with library materials.

Written Response Questions

Questions fourteen, fifteen and sixteen asked teachers to provide a written response. All narrative answers to these questions are listed in Appendix C. Important trends were noted in the responses to each of the three questions. Frequently recurring responses were noted and tallied. The total number of responses does not equal 68 as many teachers included several responses to each question in their written answer.

Question fourteen asked teachers to define the role of the school library media center in relation to their planning for curricular units. Twenty-six teachers listed that the media center played an important role in assisting in selection of materials for teacher and classroom use. Seventeen teachers responded that the media center should provide different types of resources for teachers. Eleven teachers stated that the media center plays a supportive role in their lesson planning. Six teachers believed that the media center should assist in selection of materials for children. Five teachers viewed the media center as a part of their planning process. Three responses noted computer access as a role of the media center. Three teachers also noted that the media specialist teaches children necessary skills. Table 6 lists frequently occurring answers to question fourteen. Note that the total does not equal 68 as many teachers included several statements in their answers.
### Table 6

**Frequently Occurring Narrative Answers to Question 14**

<table>
<thead>
<tr>
<th>Response</th>
<th># of Teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selection of Mats.</td>
<td>26</td>
</tr>
<tr>
<td>Provide resources</td>
<td>17</td>
</tr>
<tr>
<td>Support</td>
<td>11</td>
</tr>
<tr>
<td>Material for children</td>
<td>6</td>
</tr>
<tr>
<td>Planning process</td>
<td>5</td>
</tr>
<tr>
<td>Computer access</td>
<td>3</td>
</tr>
<tr>
<td>Teach skills</td>
<td>3</td>
</tr>
</tbody>
</table>

One teacher noted that she did not have a media specialist in the school and the materials available were very outdated, while another stated that the media specialist in her school was “inaccessible” as she “is shared among three schools”. Two teachers indicated that they did not realize the media center could be used as a resource for units, and both indicated that they would attempt to use it for that purpose in the future. Another respondent wished to be included in the process of buying books during budget time.

Question fifteen asked teachers to describe the benefits of diversifying instruction. Twenty-three teachers stated that students have more success in learning. Twenty-two respondents listed that differentiating instruction helps to better meet the needs of all
learners. Twenty-two teachers also noted higher student interest in learning. Nine stated that they could reach more students using this method. Five respondents said that curricular objectives were more effectively met, while four noted better behavior of students engaged in differentiated lessons. One teacher noted that there are “lots of different ways to learn a concept.” This teacher said that she “teaches students different ways of being ‘smart,’ letting them know that each child is ‘smart.’” Another teacher described a successful lesson she implemented which allowed students to use their different intelligences.

Question sixteen asked teachers what types of materials would be useful to have in the media center to help them in their planning process. The results are listed in Table 7. Many teachers included more than one answer in their responses.

Table 7

<table>
<thead>
<tr>
<th>Material</th>
<th># of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Books</td>
<td>34</td>
</tr>
<tr>
<td>Magazines</td>
<td>7</td>
</tr>
<tr>
<td>CD-ROM's</td>
<td>13</td>
</tr>
<tr>
<td>Videos</td>
<td>25</td>
</tr>
<tr>
<td>Computers</td>
<td>12</td>
</tr>
<tr>
<td>Music</td>
<td>6</td>
</tr>
<tr>
<td>Teacher Resources</td>
<td>10</td>
</tr>
<tr>
<td>Audio/Visual</td>
<td>5</td>
</tr>
</tbody>
</table>
Other responses to question sixteen stated that sample lessons, databases, professional "gifted" publications, materials on Multiple Intelligences, pictures, and puppets would be useful to have in the media center. One respondent clearly stated, "I JUST WANT A MEDIA CENTER!!" while another teacher wrote "our media specialist is very unapproachable and that makes it difficult to utilize the media center to its fullest potential." Another respondent said that she felt it "most important" to have "a good teacher/media specialist partnership so that the teacher feels comfortable approaching the media specialist."

Summary

The purpose of this research was to assess how and if teachers in Burlington County were differentiating instruction for Multiple Intelligences and how these teachers were using the school library media center as a resource. A summary of the data, conclusions based upon the data, and recommendations based on the data are included in the following chapter.
Summary

The purpose of this study was to assess whether teachers in Burlington County are differentiating instruction for Multiple Intelligences and if those teachers are utilizing the school library media center for materials and assistance with their classroom units. The study consisted of a questionnaire that was distributed by mail to 150 classroom teachers from grades kindergarten through sixth. Of the 150 surveys, 68 were returned and usable for the study.

Teachers were asked to rate their familiarity with Multiple Intelligences; the majority of respondents stated that they were “very” or “extremely” familiar with the theory, supporting the literature that indicated that the theory of Multiple Intelligences is a concept that is having an impact in the educational realm. Over 77% of respondents indicated that they attempt to differentiate instruction “often” or “very often.”

Teachers were also asked to rate their own use of the library and their overall satisfaction with their media center. Over half of the teachers indicated that they use the media center “often” or “very often” to compile resources for their planning. However, over 60% of the respondents indicated that the materials in their media center meet their needs only “sometimes,” “seldom,” or “never.”
It was stated in Chapter Two that little published research has been done in relation to the media center and Multiple Intelligences. In his article, “Multiple Intelligences, Paradigms and the School Media Specialist,” Daniel Barron emphatically states that media specialists have not been included in the efforts to implement programs based on Multiple Intelligences. He also states that a program based on Multiple Intelligences lends itself to a heavy dependency on the school media center (Barron, 1996). This study attempted to support this statement.

The purpose of Chapter Five is to address the stated hypotheses, draw conclusions based upon the data compiled from survey responses, and to make recommendations based upon that data.

Conclusions

The first hypothesis listed in Chapter One of this study stated “Howard Gardner’s Theory of Multiple Intelligences has an impact upon the way teachers differentiate instruction to meet the needs of all learners.” The data compiled during this study supports this statement. Of the 68 responses, only six teachers indicated that they have had no exposure to the theory. When teachers were asked how often they included lessons based on each of the different types of intelligences in their units, every intelligence excluding musical received the highest percentage of responses in the categories of “often” or “very often.” 86.5% of teachers responded that they included verbal instruction “often” or “very often” and 65.7% of teachers indicated that they include mathematical based lessons in their unit planning “often” or “very often” which may indicate that teachers are still relying on more traditional teaching strategies. Over
fifty percent of teachers answered that they differentiate lessons for spatial and
kinesthetic intelligences “often” or “very often.” Only 29.9% of teachers include musical
instruction “often” or “very often,” while 38.8% indicated that they included it
“sometimes.” This could possibly be because teachers rely on their music specialist to
teach music skills, or possibly because teachers may not have confidence or abilities in
the musical realm that they could apply comfortably in their lessons.

The responses may indicate that although schools in Burlington County may not have
adopted a Multiple Intelligences curriculum, the practices that the theory implies have
become part of common practice in many teachers’ planning. All written responses to
the survey question which asked teachers to list the benefits of diversifying instruction
were positive and indicated that teachers believe that doing so has a positive impact on
student learning.

The second hypothesis in Chapter One stated, “teachers who integrate aspects of
Multiple Intelligences into their lesson planning will need access to a wider range of
materials, both print and non-print.” This statement was supported in the review of
related literature. A study concerning media center materials and Multiple Intelligences
concluded that “library media centers must be equipped with plenty of resources that
reflect the interests of students with each of the different intelligences” (Haines, 2001).
When asked what type of resources would be most useful to have in the library, many
teachers replied that they would like to have access to materials such as videos, CD-
ROM’s, magazines, music and audio-visual material to support their units of study.
Several teachers included that they would like to have “more” and “newer” resources in
their library. One respondent stated, “ideally, the media center should have a significant
role in my planning... I often check for books, but find resources inadequate.” It is also important to note several teachers stated that they use other means for gathering resources for their teaching units, such as their own personal collections and the Burlington County Educational Media Technology Center. Although no direct correlations could be made between differentiating instruction and teacher’s satisfaction with their media centers from the data collected for this study, it should be noted that the sample size and response rate may not have been large enough to show any direct correlations.

The third hypothesis in Chapter One stated, “school library media specialists can play an integral role in helping teachers to locate, select, and acquire materials to use for differentiated instruction.” Survey responses to questions related to this hypothesis varied. 82.1% of teachers surveyed indicated that they only discuss their units of study with their media specialist “sometimes,” “seldom,” or “never.” When teachers were asked if they ask their media specialist for help in locating materials, the greatest number of teachers again indicated that they only do so “sometimes.” In response to the narrative question concerning what teacher’s believed to be the role of the media specialist in their planning, the most frequently occurring responses were “selection of materials” and “providing resources.” This indicates that many teachers are viewing the media center mainly as a place that holds materials instead of a place of collaborative planning. While some teachers seem aware of the role that the media specialist could play in their planning, all teachers may not be utilizing this resource to its fullest extent, as 74.7% of respondents answered that they “never” or “seldom” plan lessons with the media specialist.
The last hypothesis in this study stated “media specialists may need to examine their collection development and collaborative efforts to ensure that they are meeting the needs of teachers who are integrating aspects of Multiple Intelligence theory into their planning.” Barron states that media specialists need to be “better informed,” and “armed with appropriate resources” in order to “meet the needs of students and teachers engaged in these approaches to learning” (Barron, 1996, p. 41). The results of this study indicate that teachers are planning units based on differentiated instruction. Many of the responses to the narrative question concerning materials for teachers that would be most useful to have in the media center indicated a need for more materials than were currently available in the respondent’s media center. Responses to the question concerning teacher/media specialist collaboration on units indicated that almost half of the teachers surveyed never plan collaborative lessons with their media specialist. This data supports the hypothesis that media specialists may need to examine their approach to collaborative efforts.

**Recommendations**

Based upon the responses collected, media specialists may need to reflect upon how they are promoting and making materials in their media centers accessible for teacher use. School districts without media centers or full-time media center specialists need to analyze the impact that their situation has on the overall education of their students. One respondent stated that she “would love the media center to be a resource for teachers to use for lessons; unfortunately, we do not have a media specialist...our library is very outdated.” Teachers involved in unit planning for Multiple Intelligences may need to take
a more active role in seeking out the assistance of the media specialist as it may be
difficult for the media specialist to initiate communication with all teachers concerning
their units of study. Media specialists can also attempt to open communication with
teachers by providing request forms for groups of materials related to a particular unit of
study that the specialist could compile, by familiarizing themselves with grade level
curricula, by participating in grade level meetings and by allowing teachers to make
specific requests for new purchases in the media center.

Teachers and media specialists may need to analyze how the format of the resources
they are providing for children assists in developing the different types of intelligences.
The majority of teachers indicated that they use the media center to borrow books and
videos. Teachers and media specialists may need to find ways to provide other types of
resources, such as CD-ROM’s, magazines, and other media for student learning. Media
specialists could also consider purchasing musical CD’s to enhance curriculum, learning
games that engage spatial intelligence, and videos that could provide different approaches
to instruction.

In order to strengthen the design of this research, it would be useful to add survey
questions which focused more on the quality and content of available materials. It would
also be informative to ask teachers if they believe creating instruction for Multiple
Intelligences creates a need for more and different types of resources. A study involving
a larger sample of the population would increase the potential for correlations to be found
concerning Multiple Intelligences and the need for library resources. It may also be
beneficial to study whether teachers in schools in which the media center has flexible
scheduling are utilizing the media center or the media specialist in a different manner
than teachers in schools where the media center has a weekly fixed schedule of classes used as a preparation time for classroom teachers.

In conclusion, the data collected indicated that teachers in Burlington County are aware of the theory of Multiple Intelligences and many are differentiating instruction. Teachers are utilizing the media center for resources and their satisfaction with library resources varies. While some teachers find resources to be adequate, the data indicates that teachers and media specialist must continue to communicate and work together to best meet the needs of all types of learners.
Bibliography


Appendix A: Survey Cover Letter
Dear Teaching Colleague,

My name is Jackie Albright Pugh and I am a kindergarten teacher as well as a graduate student at Rowan University. I am currently compiling research for my thesis project and I would appreciate your time and expertise in completing the enclosed questionnaire to assist in my studies.

I am researching ways in which classroom teachers plan instruction to teach children with different learning strengths based on Howard Gardner's Multiple Intelligences. Through the input of teachers such as yourself, I hope to assess if and how teachers in Burlington County are differentiating instruction for different types of intelligences and also hope to assess whether or not classroom teachers are satisfied with the types of materials that their school media center has available to use as resources for differentiated classroom lessons.

All responses are confidential and it is not necessary that you identify yourself on the survey. Participation in this survey is voluntary and it is not necessary to respond to all questions. The results of the survey will be compiled and analyzed as part of my thesis project. I would greatly appreciate your help in completing this survey as your responses are the most important part of my research!

Please respond to this survey even if you are not familiar with the concept of Multiple Intelligences. Feel free to leave any responses blank that do not apply to you. If you have any questions regarding this survey, please call me at (609) 298-0676 extension 3235. You may also contact my graduate advisor, Dr. Holly Willett, at (856) 256-4759.

Thank you for taking time out of your busy teaching day. Please complete the enclosed questionnaire and return it to me in the enclosed envelope at your earliest convenience.

With Sincere Thanks,

Jackie Albright Pugh

201 Mullica Hill Road • Glassboro, New Jersey • 08028-1701
Appendix B: Survey
Please circle or check appropriate responses.

1. Are you familiar with Gardner’s theory of Multiple Intelligences?
   - Not at all
   - Vaguely
   - Somewhat
   - Very
   - Extremely

2. What exposure have you had to Gardner’s Theory of Multiple Intelligences?
   (Check all that apply.)
   - Journal reading
   - Workshop
   - Inservice
   - Coursework
   - Not familiar with theory
   - Other (please specify)

Please answer the following questions using this scale: Never Seldom Sometimes Often Very

3. When planning lessons, how often do you attempt to create instruction to meet the needs of different types of learners?

4. When planning a curricular unit, how often do you include the following types of activities:
   a. Verbal/linguistic
   b. Mathematic
   c. Spatial/logical
   d. Movement/kinesthetic
   e. Musical
   f. Interpersonal
   g. Intrapersonal
5. When planning a curricular unit, how often do you use the school library media center for materials?  

6. When planning a curricular unit, how often do you ask the school library media specialist to assist in locating materials?  

7. How often do you borrow any of the following from the media center to support your teaching:  

   - Books  
   - Magazines  
   - CD-ROMs  
   - Videos  
   - Other media (pictures, puppets)  

8. How often do you discuss your units of study with your media specialist?  

9. How often do you plan cooperative lessons with your media specialist?  

10. How often do you have the media specialist teach skills needed for classroom units?  

11. Do the materials in your media center sufficiently support your needs?
In this section of the survey, please check each appropriate response.

12. What grade level are you currently teaching?

K  1  2  3  4
5  6  other (please specify)_____________________

13. How long have you been in the profession?

1-3 years  4-6 years  7-9 years
more than ten years

In this section, please write your response to the following questions on the lines provided.

14. What do you see as the role of the school library media center in your planning for curricular units of study?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

15. What benefits do you see in diversifying instruction for different types of learners?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

16. What types of materials would be most useful to you to have in the media center to help you in planning lessons?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Thank you very much for your time and input with this survey! All answers are greatly appreciated!
Appendix C: Narrative Responses to Questions 14-16
Question 14: What do you see as the role of the school library media center in you planning for curricular units of study?

- It would be nice if we could plan units to reinforce each other.
- The library media center should help the student and teacher with units of study as well as provide an atmosphere conducive to learning.
- An integral part of the planning process. Provides resources needed for lessons and extensions.
- The media center should be the support system for curricular units. It should be accessible and understandable as far as what is available and how it can be used for the teaching staff throughout the building.
- The media center’s role is to provide resources so I can extend units of study to make them more diverse and interesting and relevant to the lives of my students.
- To assist in selecting and obtaining materials needed.
- I would like to see materials collected into different units or at least a resource sheet listing the materials for various themes.
- It has an important role. Helps me find needed information and tools. Speed.
- The school library media center provides me with teacher magazines for interesting ideas, books that aid in the units, resource material for my students, some videos (limited selection), and overhead projections.
- Resourceful. When we start a new theme/unit, I usually go to our library and research on my own, but I also ask our librarian, she has been helpful and knowledgeable. She takes the time to provide me with books and videos.
- I feel that the school library media should have the materials that I need when planning for curricular units of study. I believe that it would be helpful for the school librarian to follow up on my units of study as well.
- Important to the availability of books relating to topics being covered.
- Providing materials, support, and other resources.
- I look to her (media specialist) to guide my children to the correct materials for reports and projects. Media Center-resources for research—computers, books, videos, current events.
- I see the role of the school library media center as a place where I can get materials to supplement my lessons. I use the library to gather books, magazines, visual aids on a particular subject and I ask the media specialist for ideas on other materials I may not have thought to use.
- I would love the school library media center to be a resource for teachers to use for lessons. Unfortunately, we do not have a library media specialist. Our librarian is an aide. Our library also is very outdated and mainly includes children’s books.
- Coordination of units, research, resources, videos, books, continuation and extension of units while students are in the library setting.
- The media center has the materials that I need so that I do not have to go outside the building.
- To be used as a resource to assist in the project.
- Reference center.
- As a resource—they can help lead you to good books, materials, etc. on the topic that you are teaching, sometimes to give ideas for lessons.
- The library should have all necessary items to support the teaching curriculum.
- Support, especially in the area of laying foundations for research and providing interesting, engaging, current materials to support instruction.
- Assist teachers with information about the subject matter and culminating activities within or outside the classroom setting.
- To provide materials other than the text workbook and worksheets that go with the book, to give more choices on what to use in addition to your regular materials.
- To make suggestions for appropriate books for particular units, to provide an opportunity to invite teachers to be part of the process of buying books (at budget time) for future years.
- Provide guidance to pertinent materials and offer new ideas when possible.
- I see the library media center as an important tool in planning curricular units, but it is the teacher’s responsibility to initiate the need for its use as the media specialist may not know a teacher’s needs for a particular unit.
- Ideally, the media center should have a significant role in my planning. I often check books, but find resources inadequate. I borrow videos from the county facility. Time is a factor in collaboration, we get 35 minutes of planning per day—that is often used to call parents, etc. I wonder how a media person could be more helpful when she meets so many students each day?!
- I feel the media specialist can truly help the classroom teacher. I always go to her if I need help or just for her input.
- Provide support that the classroom teacher cannot provide (i.e. more computer access).
- Be supportive as a resource for needed materials.
- We do not make up our own curricular units. They are made for us and we need to adhere to the guidelines.
- The media center should provide supplemental books, videos, puppets that relate to our units. The media specialist should read related materials when possible. Computer access for teachers and students is also valuable.
- They are quite important to share a variety of media and alternate means to learn, i.e. computers, videos, and many, many types of literature.
- Because I have been teaching for 25 years, I have developed my own resources for units of study. When I first became a teacher I relied heavily on the school library media center to supplement my units as a library book resource, videos, filmstrips, pictures.
- Have available videos relating to specific subject. How to use/find books.
- The school library will compile books for any unit I wish to teach and I can take them to my classroom for students to use.
- Does not assist at all.
- I see the library as a valuable source of information on a topic. It gives the students the resources necessary to learn about a topic—books, pictures, ideas.
• The media center is important in supplying the students with books to read and helping us gather materials for reports. We use the internet for much research though.
• Assist when asked by providing materials, mini-lessons, etc.
• Supplement and assist.
• I honestly hadn't thought to go there before for help. I will now.
• Our librarian helps find teacher and student resources. She also teaches research and bibliography skills to assist our solar system hyperstudio project.
• The media center should be able to provide materials to support various units of study. Our media center has books and videos but not much else.
• A media specialist should assist a teacher in locating materials for a unit of study. She should also be a good resource person.
• Provide resources for students on unit topics, provide materials for classroom lessons.
• Compile resources for units, provide materials for teacher lessons, teach students how to access materials.
• I see her as a person who loans me books when I ask for them. I borrow videos and CD ROM's from the Burlington County Library. Our library is very limited.
• The media center helps get things (pictures, videos, music, books) that enhance the unit being taught.
• I don't use the library media center as a resource. However, I am realizing sometimes it is very useful when trying to locate info.
• Very necessary—the more supplies available increases success in the classroom.
• Enhancement of lessons, support.
• Making sure all materials, books, CD-ROM's, magazines, newspapers, and videos are updated and available. Be able to gather these materials for our use and know where they are available for use.
• Our media specialist is shared among three schools. She is inaccessible. If she is absent, a substitute is not provided and classes are not made up.
• Support.
• To support units with books, videos, and computer projects and programs.
• Supportive.
Question 15: What benefits do you see in diversifying instruction for different types of learners?

- It helps you to reach your lesson objectives.
- More students are reached, therefore providing growth among students.
- Better understanding and retention of learning.
- In order to reach my students I know a variety of activities and approaches must be implemented.
- It meets the needs of all students. Students grasp the concepts and skills through different means of instruction. It also makes it more fun and interesting.
- It meets the needs of all learners and makes learning fun and interesting.
- This way all children can work up to their potential.
- Very crucial and necessary for successful learners.
- The benefits are wonderful. Every student in your class gets the chance to learn and do something in the way that works best for them.
- It benefits all learners. Since we are using different styles and media, it can benefit all.
- Diversifying instruction is extremely important to meet various needs/levels in a class.
- It helps to reach students who may not learn in a “typical” classroom.
- Learning is more meaningful and authentic, more students learn.
- All children can find their individual niche.
- By diversifying instruction you can reach more students. I often find that children respond positively to various techniques.
- Everyone has different strengths and weaknesses. By presenting a topic in several different ways, the teacher will hopefully tap into a child’s strength, which leads to student success.
- It benefits all students. Certain students excel at certain activities. That gives all kids the chance to succeed. Plus, kids think different activities are fun.
- There are many types of learners and so one must address this.
- It makes the lesson meaningful as well as capturing a child’s interest in learning.
- Variety keeps lessons interesting and the more engaged the learner, the better he/she understand and applies knowledge.
- This keeps students actively engaged.
- Quite helpful to help all students succeed.
- Diversifying instruction makes learning a rewarding experience, and the students feel achievement.
- Meet the needs of more students.
- Increases learning for children.
- I think at the K level it is extremely important to present concepts in varied forms.
- You are able to meet all of the students needs, you are more likely to be sure that everyone understands and has comprehended the lesson by teaching in a variety of ways. It gives everyone equal opportunity to succeed.
- Diversity of instruction promotes feelings of competence and success in the students. Addressing multiple intelligences provides variety and interest for all students.
• The whole group benefits.
• Reach different students more effectively, increased attention, introduce new ways of thinking to other students.
• You have a better chance of reaching all students through different strategies.
• It is not only beneficial but necessary to be a teacher that meets the needs of all students.
• Lots of different ways to learn a concept—touching more intelligences and ways of being smart. More students truly learn a concept. I teach students the different ways of being smart—letting them all know that each is smart.
• It is very important; however, unfortunately the easiest type of learning to come up with ideas for are: verbal/linguistic, kinesthetic and interpersonal. I use history songs from Schoolhouse Rock, clips from movies, lots of group projects (PowerPoint, pop-up books, board games, dioramas).
• Reach all learners in their most natural style, while exposing them to others in order to develop these areas.
• I feel it would benefit all learners because different types of instruction could serve as an intro., a review, a practice, a challenge.
• You meet the needs of your gifted/inclusion and general ed. students. Everyone can feel successful because they are doing work they are able to do and are being challenged with.
• The students are learning and developing together as they work at their own pace. No discipline problems.
• Create a positive, successful learning environment for all students.
• I am meeting the needs of every child and involving everyone in the learning.
• It keeps the lesson interesting for the students and the teacher. It helps learners in different ways, students just don’t get it when a teacher talks all the time—but hands on would get them to understand an idea, it helps to reach all the student and some students have different intelligences which allow them to understand ideas better. Plus it gives the child who does not do well on a test to be great in teaching the class, or making a project, or writing a song. It is important that the child feels successful—then they enjoy learning.
• When a teacher is aware of the different styles of learning, lessons come alive for all students. Often students will connect to the lesson if different ways are explored by the teacher.
• The learners will be learning in the best structure they can. Each learner learns differently so you need to teach to their style.
• I am able to reach a wider range of students.
• All learn to the best of their individual abilities.
• Instruction needs to be diversified for students. Everyone does not learn in the same way. If students can learn by moving around then that should be incorporated into your lesson. If students do not learn something one way then they may need to look at it or touch it. Teaching to all intelligences helps all students to become successful.
• It is very important to diversify instruction because it allows students to learn material that matches their strengths. Not all students obtain and recall
information the same way and diversifying instruction allows the teacher to reach more students.

- More children will experience success!
- The most important benefit is to reach each kid. No one should be left out—all kids should have the same opportunities to learn—no matter what their style of learning is. Diversifying helps keep it fresh and fun for all learners.
- Very important, especially at the kindergarten level.
- I believe that since students learn in different ways, instruction should be presented in different ways to accommodate all students. I also believe that diverse instruction keeps all students motivated and interested.
- Engage all learners!
- Diversifying instruction enables you to reach every student in your class and make learning fun.
- The excitement of learners, the responses are better. Just finished a Holocaust unit. Students had choices for responses. All had to try each type somehow, alone or with a partner. Most were involved in a musical response. One group included instruments. I used South Pacific’s “You’ve Got To Be Taught” in a lesson.
- It allows me to see more children be successful because they can identify with what we are learning.
- Less discipline problems when all are actively involved.
- This helps reach all learners. All children learn differently. You may touch a child with one strategy more effectively than with another.
- Diversifying instruction enables each learner to realize his/her full potential. It will meet each student at his/her point of strength and will enable students to build on and maximize talents.
- This is important in making sure all children tap their special intelligences. All children can succeed if provided with a way in which to show what they know in their own special way!
- Every student learns differently. By taking into account the multiple intelligences when planning units of study you will be able to reach all of your students.
- It allows all children to be successful.
Question 16: What types of materials would be most useful to you to have in the media center to help you in planning lessons?

- Current books and magazines. Large variety of videos. They should be easily accessible.
- Books, magazines, CD-ROM’s, computers and multi-media centers.
- Accessible database that provides resource locations as well as provide outside resources.
- Student materials for units on appropriate level for units covered.
- Books (lots of them!), CD-ROM’s and more computers, Internet, magazines.
- More current books and videos.
- Diversified materials—magazines, updated videos and CD-ROM’s.
- More music. I’m trying to include more and more.
- It would be helpful for me to have more teacher resources appropriate for my grade level, a better selection of videos, CD-ROM’s, pictures, and current literature to go with the new curriculum.
- Up to date short picture books to use as an anticipatory set to my lessons, videos, teacher magazines.
- Puppets, pictures, posters, literature that supports my lessons, videos, CD’s, tapes, musical instruments, manipulatives, materials for culminating activities.
- Books for child use, resource books for ideas.
- Posters, transparencies, videos, audiotapes, computers for research, fresh, new books.
- More up to date fiction and non-fiction selections.
- TV/VCR’s, videos, resource books for teachers to help prepare lessons for various subjects, magazines, newspapers, computer programs, polaroid and digital cameras, overhead projector, books on tape, Mailbox—most important is to have access to these materials and to have a good teacher/media specialist partnership so that the teacher feels comfortable approaching the media specialist.
- I would like them to have teacher’s magazines and journals, also research articles, information on topics such as special ed. Also videos and tapes.
- Periodicals, computer software, CD’s.
- Teacher resources and magazines, books.
- Videos, sample lessons, a wide variety of age appropriate materials.
- Resource books, short videos to use an introduction to lessons, websites bookmarked for easy access.
- I JUST WANT A MEDIA CENTER!!
- A huge variety of video, the materials that are listed in the teacher text book to use and are kept just for teachers. TV, VCR, computers, Internet, research books, paintings, pictures, art work.
- CD-ROMs, more books, a direct network to the teacher computer to access what is available.
- Professional “gifted” publications.
- Technology, books, work stations.
• More videos that are age appropriate, more picture books about materials in the unit.
• Theme type books for units, seasonal type books (for holidays, monthly activities, etc.)
• Videos, CD’s, trade books and reference materials.
• Well, my specialist said we have a website where we can reserve videos and CD-ROM’s, but I don’t remember learning about how to access them. I guess videos, CD-ROM’s, music CD’s, better computers, downloading capabilities.
• More non-fiction—science books, music resources, pictures. Web sites, more computers.
• A wide selection of books is great to have a variety of topics and situations. Books with tapes are useful also. I use the teacher resource books that are provided by my curriculum supervisors.
• Each student must have their own computer during library or computer lab. No sharing!
• Books, videos, lists of useful websites.
• Books, videos, videotapes, music, CD’s, puppets, computers.
• A larger variety of books and several of the same books to use for projects.
• I think that at the K level we don’t need as many resources a media center can supply. However, the older grades I would assume rely much heavier on the media center to supply lots of curriculum needs.
• Videos and books.
• Videotapes applicable to the curriculum, wide variety of books by well known authors.
• Videos and books for the unit one is planning.
• Teacher reference center—books, posters, tapes, movies.
• Research material, good individual reading material.
• Videos, reference books, computers with access to the Internet, non-fiction, and finally fiction for language arts projects.
• Teacher idea books.
• Not applicable, I teach English, Math, and Reading.
• Videos, we can order them but sometimes it’s hard two weeks in advance. CD-ROM’s.
• Posters, pictures, approved CD-ROM’s that could be used in the classroom and kits on various subjects such as the solar system or the human body.
• Books, video, a resource of worthwhile websites.
• Newer literature, more easy level science books, multiple copies of materials.
• Current materials, accessible materials. Our media specialist is very unapproachable and that makes it difficult to utilize the media center to its fullest potential.
• I incorporate video, CD-ROM’s and music when applicable to my units. I also try to find computer games and art projects to diversify my instruction.
• Video’s, filmstrips, books, pictures.
• Teacher resource books for every subject. An index of teacher related material so you know exactly what’s available.
- A collection of tapes for ideas to address learning successfully with multiple intelligences.
- My media specialist has a copy of the K curriculum, she knows what the children are studying and when. She provides me with journals, and other guides such as Mailbox. She orders videos out of her budget. She is also very Internet savvy.
- TV’s, VCR’s, tape recorders and recorded books, carobooks, record players, records, pictures, puppets, electroboards.
- CD-ROM’s, books, videos, CD’s either in storybook format or music.
- Computerized card catalog (we have it and I love it!), professional magazines.
- The books that are recommended in my curriculum guides, specifically trade books for math, science, and social studies. It would be helpful to have more inservices on the computer programs available for first graders.
- Current books.