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An application of the theory of multiple intelligence to improve academic performance and achievement goals in the early school years

Marilyn Victoria Garcia-Mata

AN APPLICATION OF THE THEORY OF MULTIPLE INTELLIGENCE TO IMPROVE ACADEMIC PERFORMANCE AND ACHIEVEMENT GOALS IN THE EARLY SCHOOL YEARS

A Thesis

Presented to the

Faculty of

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San Bernardino

In Partial Fulfillment

of the Requirements for the Degree

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in

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Approved by:

[redacted]

Dr. Robert Ricco, Chair, Psychology

3/13/2013

Date

[redacted]

Dr. Laura Kamptner

[redacted]

Dr. Sharon Ward

ABSTRACT

Reading, answering questions, and completing worksheets are part of the traditional teacher-centered curriculum. Howard Gardner's Multiple intelligence (MI) theory, however, helps generate exciting school curricula by incorporating nine competences. Several researchers claim that the theory supports students' academic performance and assessment scores. Additionally, children with learning achievement goals have been found to be active in understanding school material. Based on these findings, the present research project adapted MI as an intervention in a third grade classroom to determine whether the theory supports students' academic performance and whether it helps develop learning achievement goals in the area of social studies. It was predicted that the MI intervention would increase third grade students' social studies academic performance and endorse a learning goal approach in social studies. To evaluate the effectiveness of the intervention, pretest and posttest scores on students' achievement goal orientation and social studies academic grades were compared. Linguistic, Visual-Spatial, Logical-Mathematical, Musical and Bodily-Kinesthetic intelligences were incorporated into the existing school curriculum. Intrapersonal and Interpersonal intelligence

were incorporated in a supporting capacity. Each day a different intelligence was employed in the classroom setting. Results suggested that social studies knowledge improved considerably across the course of the study. This may have been for several reasons. More importantly, students' achievement goal orientations were more learning or mastery focused at the end of this intervention. The findings are discussed with respect to their implications, including the possibility of applying MI to the classroom curriculum as a strategy to promote learning goals.

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DEDICATION

I would like to dedicate my research project and my Master degree to my family. Specially, to my loving husband, Christian Garcia, who encouraged and supported me throughout my college career. I also dedicated my Masters degree to my father and mother who always advocated that education is essential for achieving success. Additionally to my brothers and sisters, in hope that they also continue their upper education and remember that they are the only ones that can put boundaries to their goals. Furthermore, I dedicate my project to God and the Virgin Mary for always filling me with their spirit and energy to overcome obstacles.

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CHAPTER ONE

INTRODUCTION

Howard Gardner's (2006) multiple intelligence theory states that people have nine competences which allow them to gain knowledge, solve tasks, and generate projects. People generally vary in their strengths and weaknesses regarding each of these competences; however, it is possible to achieve dominance in all nine competences (Gardner, 2004; Gardner, 2006). Linguistic, logical-mathematical, visual/spatial, musical, bodily-kinesthetic, interpersonal, intrapersonal, naturalistic (Armstrong, 2009; Gardner, 2004; Gardner, 2006; Kornhaber, Fierros, & Veenema, 2004) and existential intelligence comprise (Gardner, 2006) the nine competences in MI theory.

Although only MI will be the focus of the proposed research, it is important to highlight the differences between MI theory and other major theories of intelligence. For example, Spearman's g-factor differs from MI in that the former claims that intelligence is measureable through an IQ test (Carroll, 1996; Gardner, 2006; Spearman et al., Flanagan, McGrew, & Ortiz, 2000). Carroll's Three-Stratum Theory differs from Gardner's MI

theory because it incorporates the traditional view of the g-factor and because it claims that cognitive abilities can be hierarchically mapped (Carroll, 1996; Carroll, 1997). Sternberg's theory and Gardner's theory differ in the extent to which they emphasize cognitive aspects of intelligence, in the nature and role of assessment in the theory (Gardner, 2006), in the presumed importance and role of essay writing in school, and in terms of teaching to the test (Gardner, 2006; Sternberg, 1989; Sternberg, 1998; Sternberg, 2000). In contrast to MI theory, Sternberg's theory maintains that educators should not develop a range of different activities, such as bodily-kinesthetic activities, to teach the curriculum, and it claims that teachers should have students write essays similar to the ones that appear in school assessments and should utilize instructional time efficiently.

MI theory as applied to the classroom curriculum has been found to promote the development of effective learning strategies that help students understand school materials (Akkuzu & Akcay, 2011; Al-Balhan, 2006; Armstrong, 1994; Brand, 2006; Delgoshaeia & Delavaria, 2012; Liess & Ritchie, 1995; Ozdemir et al., 2000; Özdener & Özçoban, 2004; Ozdilek, 2010; Perez & Beltran, 2008;

Stăncună & Crăciun, 2011). Applications of MI theory have been found to assist students in developing cognitive skills (Delgoshaeia & Delavaria, 2012; Rettig, 2005), in learning school material quickly (Al-Balhan, 2006; Liess & Ritchie, 1995; Ozdemir et al., 2000), in maintaining the information longer (Ozdemir et al., 2000), and in developing positive attitudes towards school subjects (Akkuzu & Akcay, 2011).In addition, MI theory helps teachers create a lesson plan (Armstrong, 1994; Delgoshaeia & Delavaria, 2012; Liess & Ritchie, 1995; Stăncună & Crăciun, 2011). Applications of MI theory have also been found to help children develop other abilities such as musical skills, acting ability, athleticism, pro-social behaviors and the ability to use technology (Armstrong, 1994; Liess & Ritchie, 1995).

One basis for the effectiveness of MI interventions could be their positive impact on students' achievement motivation. One way to conceive of this impact is in terms of goal orientation theory (Dweck, 1999). Achievement goal orientation has been found to influence academic performance. Students with a learning goal orientation favor learning over performance, are confident, assertive, view intelligence as changeable and have pro-social behaviors compared to students with performance-approach

and performance-avoidance goals (Ablard, 2002; Agbuga, Xiang, & McBride, 2010; Bong, 2009; Dweck, 1999; Linnenbrink, 2005; McNeil & Alibali, 2000; Meece & Miller, 1999; Meece & Miller, 1999; Midgley et al., 2000; Self-Brown & Mathews II, 2003; Sungur & Senler, 2010).

The present research project incorporated MI theory into the school curriculum of a third grade social studies classroom. This MI intervention seeks to increase students' post-test academic grade scores in the social studies chapter of Old and New Communities and attempted to influence students' achievement goal orientation. It was expected that students with learning goals maintain the same achievement orientation and increase their academic post-test grade in the social studies assessment. The implementation of MI theory in the classroom was also expected to move performance-approach and performance-avoidance students toward more of a learning goal orientation and to improve their social studies scores. Although the results between students academic performance and MI intervention were unclear, the data confirm that third graders did maintained or move towards a learning goal orientation after the implementation of the MI curriculum.

Gardner's Multiple Intelligence Theory

In the early 1900's, psychologist Alfred Binet created the first intelligence test to identify French elementary students with learning difficulties in order to provide them with academic interventions (Gardner, 2004; Gardner, 2006). Gardner (2004; 2006) elaborated that Binet's test observes students' intellect in a one-dimensional manner and generates an intelligence score. Binet's work established the notion that people's intelligence can be calculated through a test, and this idea has become a part of popular and professional culture in the United States. Across the years, students have received different types of intelligence tests such as the Scholastic Aptitude Test (SAT) (Gardner, 2004; Gardner, 2006).

Unsatisfied with the concept that all aspects of peoples' intelligence can be calculated through the same measurements, Howard Gardner developed the theory of multiple intelligence (MI)(Armstrong, 2009; Gardner, 2004; Gardner, 2006; Kornhaber et al., 2004). Gardner (2006) argues that this theory does not represent intellect as uni-directional, i.e., measurable by a single test. Gardner's theory postulates that people have various intelligences and these are cognitive capacities such as

skills, abilities, and talents. People utilize these intelligences to accomplish tasks, resolve problems, generate materials, and acquire insight. The theory asserts that there are nine intelligences (Gardner, 2006). Every individual possesses all nine intelligences; however, individuals have different levels of comfort within each intelligence and various intelligences can work together when completing a task (Gardner, 2004; Gardner, 2006). For instance, a person might be strong in certain intelligences and weak on others. Gardner notes that it is essential for people to develop all their intelligences and these competences are reciprocal (Armstrong, 2009). Gardner (2004; 2006) argues that the development of intelligences has a psychobiological basis and that they are also influenced by culture. The following are the nine intelligences proposed by Howard Gardner:

Linguistic Intelligence

Linguistic intelligence is people's ability to express themselves adequately through the use of verbal and writing skills (Armstrong, 2009; Gardner, 2004; Gardner, 2006; Kornhaber et al., 2004). Individuals with dominant linguistic skills can recognize how to utilize words, and can determine when to break grammar and

punctuation rules. Linguistic skills can be used to memorize information, inform others, and influence person's opinions (Armstrong, 2009; Gardner, 2004; Kornhaber et al., 2004). Individuals with dominant linguistic intelligence might become poets, writers, attorneys, and public speakers (Kornhaber et al., 2004). Linguistic intelligence is the competence normally employed in a school curriculum to lecture and explain concepts to students (Gardner, 2004; Kornhaber et al., 2004).

Logical-Mathematical Intelligence

Logical-mathematical intelligence is the capacity to understand and utilize theoretical knowledge as in mathematical, logical, and scientific thinking (Armstrong, 2009; Gardner, 2004; Gardner, 2006; Kornhaber et al., 2004). Armstrong (2009) noted that individuals with logical-mathematical intelligence can interpret theoretical concepts, identify correlations and patterns, and analyze clauses and premises. This intelligence is normally employed to teach the curriculum of mathematics and science in western societies (Kornhaber et al., 2004). Logical-mathematical intelligence is a relevant skill when dealing with arranging items, making speculations, clarifying vague notions, testing scientific assumptions,

and computing figures (Armstrong, 2009). Academic domains that require a dominant logical-mathematical intelligence are mathematics, science, and engineering (Kornhaber et al., 2004).

Visual/Spatial Intelligence

Visual/spatial intelligence is the competence to acquire knowledge through the visualization of information, and the ability to alter the information and generate mental representations about the information (Armstrong, 2009; Gardner, 2004; Gardner, 2006; Kornhaber et al., 2004). People with strong visual/spatial intelligence can distinguish different relationships and individual concepts of colors, lines, figures, configurations, graphics, orientations, and areas (Armstrong, 2009). Careers that require elevated degrees of visual/spatial intelligence are architecture, art, surgery, and aviation (Kornhaber et al., 2004).

Musical Intelligence

Musical intelligence is the ability to identify melodies, rhythms, and tones in music (Armstrong, 2009; Gardner, 2004). These skills permit people to express their feelings through sounds (Gardner, 2004) and to generate and understand information through music (Kornhaber et al., 2004). People who posses elevated

levels of musical intelligence are composers and musicians (Gardner, 2004; Kornhaber et al., 2004), and acoustic engineers (Kornhaber et al, 2004).

Bodily-Kinesthetic Intelligence

Bodily-Kinesthetic intelligence is people's capacity to employ their body movements to rationalize issues, gain insight (Kornhaber et al., 2004), and communicate concepts and feelings (Armstrong, 2009). In order to employ this intelligence, people must have control over their fine motor and gross motor skills (Gardner, 2004). This form of intelligence is important to many areas of activity. It is essential for developing physical endurance, adroitness, and flexibility, and for maintaining balance or equilibrium across rapid and complex body movements (Armstrong, 2009). Unfortunately, this competence is not valued as a teaching strategy in a typical school curriculum. High levels of bodily-kinesthetic abilities are easily observed in dancers, athletes, musicians, and artists (Gardner, 2004; Kornhaber et al., 2004).

Interpersonal Intelligence

A person's ability to be aware of other people's perceptions, emotions, interests, behaviors, and attitudes in order to resolve interpersonal dilemmas is called Interpersonal intelligence (Armstrong, 2009; Gardner,

2004; Kornhaber et al., 2004). In order to understand others, people with this ability must identify and react appropriately to people's facial and bodily gestures, language expressions, and internal signals (Armstrong, 2009). High degrees of interpersonal intelligence can be observed in professors, politicians, therapists, and actors (Kornhaber et al., 2004).

Intrapersonal Intelligence

Intrapersonal intelligence is the earliest ability to manifest itself (Gardner, 2004). At an early age, people can acknowledge, distinguish, and classify their emotions and personal roles in order to engage in appropriate behaviors (Armstrong, 2009; Gardner, 2004; Kornhaber et al., 2004). Gardner (2004) argues that novelists and therapists are examples of individuals who posses high degrees of intrapersonal intelligence.

Naturalistic Intelligence

Naturalistic intelligence is a person's ability to acquire knowledge from information obtained from natural environments. For instance, this competence empowers people to identify and classify animals and plants with information within the natural environment (Armstrong, 2009; Kornhaber et al., 2004). Strong degrees of naturalistic intelligence can be observed in landscape

workers, architects, hunters, archeologists, and farmers (Kornhaver, 2004).

Existential Intelligence

Recently, Gardner (2006) suggested an additional competence called existential intelligence. People with existential intelligence have the ability to generate abstract questions and ideas. Philosophers and priests seem to experience high levels of existential intelligence. This competence is influenced by societies that allow people to question ideas, use technology, and have religious freedom. A lesion to the inferotemporal lobe can impair a person's ability to generate philosophical questions or ideas (Gardner, 2006). Howard Gardner (2006) noted that further evaluations of the existential competence are needed to definitively conclude that this competence is an intelligence.

Gardner claims that in order for a competence to be considered an intelligence it must accommodate eight qualifications (Armstrong, 2009; Gardner, 2004). The following are Howard Gardner's eight intelligence qualifications.

Potential Isolation by Brain Damage

According to Gardner (2004), an injury to specific brain areas can damage a particular intelligence without

affecting the other intelligences. Gardner (2006) and Armstrong (2009) explain how brain damage can qualify a competence as an intelligence. The left temporal, frontal lobes and brain areas such as Broca's and Wernicke's areas are essential neurological structures for linguistic intelligence (Armstrong, 2009; Gardner, 2006). An injury to Broca's area can impair a person's ability to speak, write, and read. The right temporal lobe is found to take part in understanding sounds and song compositions (Armstrong, 2009; Gardner, 2006). Therefore it is essential for musical intelligence, whereas for logical-mathematical intelligence the left frontal and right parietal lobes are valuable brain areas (Armstrong, 2009; Gardner, 2006). Vital neurological structures for visual-spatial intelligence are posterior regions of the right hemisphere (Armstrong, 2009; Gardner, 2006). A lesion to these areas is associated with loss of direction, damage to visual memory, and inability to perceive specific information, while the cerebellum, basal ganglia, and motor cortex are crucial structures for body control and movement (Armstrong, 2009; Gardner, 2006). As a result, such lesions impact bodily-kinesthetic intelligence (Armstrong, 2009; Gardner, 2006). A lesion to the frontal lobes, temporal lobe (especial right

hemisphere), and the limbic system can impair interpersonal intelligence causing antisocial behaviors (Armstrong, 2009; Gardner, 2006). Damage to the frontal lobes, parietal lobes, and limbic system affects intrapersonal intelligence by causing frustration and insensitivity towards others (Armstrong, 2009; Gardner, 2006). As for naturalistic intelligence, a lesion to particular areas of the left parietal lobe can cause difficulties in distinguishing "living" from "nonliving" (Armstrong, 2009; Gardner, 2006).

The Existence of Savants, Prodigies and Other Exceptional Individuals

Howard Gardner (2004; 2006) claims that people have distinct levels of all nine intelligences. Individuals with savant syndrome are people who have low levels of broad intellectual competence but who show exceptional skills in specific areas such as art or literature (Gardner, 2004). Other exceptional individuals are people who are dominant in a particular intelligence(s) and who are weak in one or more of the other intelligences (Armstrong, 2009). On the other hand, prodigies are individuals who have high levels of one or more particular competence(s) (Gardner, 2004; Gardner, 2006). A musical prodigy was Wolfgang Amadeus Mozart who had high levels of

musical intelligence ("History Makers", 2003). Mozart was an exceptionally talented pianist and violinist who before reaching puberty had composed many symphonies ("History Makers", 2003).

A Distinctive Developmental History and a Definable Set of Expert "End-State" Performances

Cultural values and human development have important implications in the maturation of all intelligences (Gardner, 2004). Gardner (2006) and Armstrong (2009) elaborated on this MI prerequisite. Linguistic and visual-spatial intelligences are developed early in infancy and remain stable until old age (Armstrong, 2009; Gardner, 2006). Culture impacts the maturation of linguistic intelligence through engagement in actives such as storytelling and emphasizing the importance of literature, whereas culture influences visual-spatial maturation through art work, architecture, and design (Armstrong, 2009; Gardner, 2006). Intrapersonal and Interpersonal intelligences develop in the first years of life (Armstrong, 2009; Gardner, 2006). Society impacts interpersonal intelligence with the use of social institutions and in ancient times social interactions were essential for survival, while intrapersonal intelligence is influenced by religion and psychological aspects

(Armstrong, 2009; Gardner, 2006). Logical-mathematical intelligence reaches its highest point in adolescence and early adulthood (Armstrong, 2009; Gardner, 2006). However, after the age of 40 it begins to deteriorate (Armstrong, 2009; Gardner, 2006). Culture influences logical-mathematical intelligence by employing scientific and mathematical concepts (Armstrong, 2009; Gardner, 2006). The maturation of bodily-kinesthetic intelligence relies upon people's control over their bodies and culture influences this intelligence through athletics and theatre arts (Armstrong, 2009; Gardner, 2006). Musical intelligence is developed early and culture influences maturation of this competence through musical performance and recordings (Armstrong, 2009; Gardner, 2006). Naturalist intelligence appears in childhood and culture impacts it through activities such as hunting rituals (Armstrong, 2009; Gardner, 2006).

An Evolutionary History and Evolution Plausibility

For a competence to be considered an intelligence it must fulfill the requirement of having an evolutionary basis and appear in other species' ontogeny (Armstrong, 2009; Gardner, 2004). Gardner (2006) and Armstrong (2009) go into detail on the prerequisite of evolutionary plausibility for a competence. For instance, linguistic

intelligence has evolutionary roots in humans' speech abilities and it is also evident in ape's capacity to name things. The creation of numbers and calendars represent species-wide historical roots for logical-mathematic intelligence, and this type of intelligence has evolutionary precursors in bee's dancing abilities to estimate distances. Cave printings and the instinct or drive to protect one's habitat are examples of the evolutionary plausibility of visual-spatial intelligence (Armstrong, 2009). Humans' fine and gross motor skills are aspects of bodily-kinesthetic intelligence with significant evolutionary pressure within our species' phylogeny. In addition, they have extra-species manifestations in primates tool use. The evolutionary basis of musical intelligence is apparent in the creation of musical instruments in the stone period and in its manifestation in other species such as in bird songs. For interpersonal intelligence, evidence of historical roots are hunting and gathering, while proof of the presence of this type of intelligence in other species is the bonding between animals and their offspring. An evolutionary basis for intrapersonal intelligence is the existence of primitive religious beliefs, while evolutionary

plausibility is evident in apes feeling fear (Armstrong, 2009; Gardner, 2006).

Support from Psychometric Findings

Gardner (2004) suggests that all the intelligences are testable; however, to assess an intelligence can be difficult because it requires the interaction of the individual and the environment. Additionally, analyzing the intelligence assessment results can cause some confusion. Although Gardner (2004) dislikes intelligence tests, these assessments do provide some support for his multiple intelligence theory. The Wechsler Intelligence Scale has assessed several intelligences such as spatial intelligence (sorting of pictures) and bodily-kinesthetic intelligence (putting items together) (Armstrong, 2009).

Support from Experimental Psychological Tasks

Gardner (2004) claims that research studies provide support for a particular intelligence. For example, research studies on cognitive development can lead to insight on intelligence such as visual spatial intelligence.

An Identifiable Core Operation or Set of Operations

Each intelligence must have a core operation that guides the functions of a particular competence (Gardner,

2004; 2006). The following are the core operations for all of the intelligences (Armstrong, 2009; Gardner, 2004). The core operation for linguistic intelligence is the ability to use words and language appropriately, whereas the core operation for logical-mathematical intelligence is the capacity to understand reasoning and mathematical concepts. The core operation for visual-spatial intelligence is the ability to conserve and identify different elements of objects, whereas the core operation for bodily-kinesthetic is the power to control body movements. Musical core operations are the awareness of rhythm, pitch, and timber, while naturalist core operations are the ability to identify and categorize environmental items. Awareness of others is the core operation for interpersonal intelligence, while awareness of the self is the core operation for intrapersonal intelligence (Armstrong, 2009; Gardner, 2004; Gardner, 2006).

Susceptibility to Encoding in a Symbol System

Gardner (2004; 2006) states that human beings are the only species that has symbolic systems. All competences must have symbolic symbols in order to be considered an intelligence (Armstrong, 2009; Gardner, 2004; Gardner, 2006). The following are the symbols for all nine

intelligences: Phonetic language is the symbol for linguistic intelligence; computer language is the symbol for logical-mathematical intelligence; ideograph language is the symbol for visual-spatial intelligence; body signals are the symbols for bodily kinesthetic intelligence; musical systems are the symbol for musical intelligence; classification is the symbols for naturalistic intelligence; social signals are the symbol of interpersonal intelligence; and self-signs such as dreams are the symbols for intrapersonal intelligence (Armstrong, 2009; Gardner, 2004).

In summary, Howard Gardner's theory views intelligence as being pluralistic, and each competence must fulfill specific criteria to be considered an intelligence. People have different levels of each intelligence; however, every individual can develop and maintain all nine intelligences. Nevertheless, there are theories that have traditional concepts of human intelligence.

Different Theories of Intelligence with Traditional Views

Howard Gardner's theory differs from many theoretical constructs of intelligence. For instance, some theories postulate traditional psychometric accounts, specify

exclusively cognitive abilities, and claim that educators should have an essay writing curriculum in order to teach similar to the test material. The following are theories that differ from Gardner's Multiple Intelligence theory.

Charles Spearman is considered the father of the psychometric perspective on human intelligence and creator of the general intelligence theory (also known as the g-factor and single g) (Carroll, 1996; Flanagan, McGrew, & Ortiz, 2000). The general intelligence theory calculates people's intellect through their ability to resolve cognitive problems (Spearman 1904; 1927 as cited in Flanagan et al., 2000). The g-factor's theoretical assumption that intelligence can be calculated as a direct function of performance on cognitive tasks led to intelligence tests such as Alfred Binet's intelligence test (Flanagan et al., 2000). Based on the latter concepts, Gardner (2006) argues that g intelligence is a unitary theory of intelligence which does not account for age, education, or life encounters, as opposed to MI theory which takes into consideration the biological and cultural aspects of intelligence. Gardner (2006) argues against the concept of a single measurement that statistically calculates intelligence because he notes that the exact definition of the g-factor is unknown.

Furthermore, Gardner (2006) claims that just because people score well on an IQ test does not mean that they are dominant in all intellectual abilities.

Carroll's Three-Stratum theory is another traditional view deriving from theories such as g-factor intelligence and Gf-Gc theory (Carroll, 1996; Carroll, 1997). Carroll's theory postulates that cognitive abilities can be hierarchically mapped into three stratums. The g-factor is in the third and highest level stratum. Below the third stratum is the second stratum which consists of ten broad cognitive factors such as, "fluid intelligence, crystallized intelligence, general memory and learning, broad visual perception, broad auditory perception, broad retrieval ability, broad cognitive speediness and processing speed" (Carroll, 1997. p. 124).

Fluid intelligence (gf) refers to the capacity to process information, the ability to differentiate relations among external stimuli, and the speed with which people process new information. Crystallized intelligence (gc) is the ability to accumulate knowledge through experience (Taylor, 1994 as cited in Flanagan et al., 2000). The first stratum is made up of narrow factors that are controlled by the broad factors of the second stratum (Carroll, 1996; Carroll, 1997). The third stratum governs

the second stratum and implicates the broad cognitive factor when engaging in a task, whereas, the second stratum governs and receives all the needed narrow factors (Carroll, 1997). Gardner's and Carroll's theoretical concepts differ in the following terms. As previously mentioned, Gardner does not agree with Spearman's g-factor and this is the main concept that was adapted to the three stratum theory (Carroll, 1997). Carroll (1997) notes that the MI theory does not agree that intelligences can be hierarchically mapped because Gardner views all the intelligences as separate from each other.

A contemporary intelligence theory with traditional views is Robert Sternberg's Triarchic Theory of Successful intelligence. Sternberg (1985; 2000; 2011; Sternberg & Grigorenko, 2002) notes that successful intelligence is when people accomplish their objectives in their contextual environment through the employment of all their capacities, identify their intellectual dominance, perceive and strive to improve their intellectual weakness, and use their analytical, creative and practical thinking abilities to accommodate, alter their surroundings, or move to a different location. Unlike Gardner's theory of intelligence that focuses on nine competences, Sternberg's Triachic theory centers on three

aspects of intelligence called internal, external, and experiential (Sternberg, 1989; Sternberg, 2000). Internal aspects of intelligence are cognitive processes for example, the manner in which people perceive and understand information and exercise appropriate strategies to resolve complications. External aspects of intelligence are people's ability to interact within the environmental setting to learn information. The experiential aspect of intelligence is people's capacities to resolve dilemmas and acquire knowledge through their experiences (Sternberg, 1989; Sternberg, 2000; Sternberg, 2011). Within these aspects of intelligence, there are three types of cognitive processes (i.e., metacomponents, performance components, knowledge-acquisition components) used depending on which types of ability or abilities (analytical, practical, and creative) are needed to resolve difficult situations and assignments (Sternberg, 2011). The following are the three components in the triarchic theory. When solving a task, people use metacomponent processes to understand and approach the task, choose, and analyze the effectiveness of the strategy. After the metaprocesses select the strategy to solve the task, the performance components carry out the strategies. While people understand the cognitive task,

search for solutions, analyze the approach taken to resolve the task, the knowledge acquisition component helps people gain new knowledge (Sternberg, 2011). The following explains the three types of abilities proposed by the triarchic theory. People use their analytical abilities to perform complex conceptual tasks such as interpreting information and analyzing ideas. To apply creative abilities, people are engaged in a new assignment or unfamiliar circumstances. Finally, the ability to implement people's knowledge to the environment (Sternberg, 1998) in order to accommodate, alter, or relocate to an environment is practical ability (Sternberg, 2011).

Although the triarchic theory and multiple intelligence theory are competing contemporary theories that state that intelligence is not fixed, is pluralistic (Gardner, 2006; Sternberg, 2000), is not measureable through one test (Gardner, 2006), and is impacted by physical and biological factors (Sternberg, 2000), Sternberg's theory applies a traditional curriculum to the classroom setting. The triarchic theory suggests a school curriculum that incorporates memory, analytical, creative, and practical activities (Sternberg, 1998). The following are examples of the Triarchic theory applied to the

classroom curriculum which involves the traditional task of writing essays. An English creative lesson plan would be to write a different conclusion to the ending of a story. A practical mathematical lesson plan would be to write the impact of calculations on building structures. An analytical musical lesson plan is writing a paper distinguishing sounds of musical instruments. A memory physical education lesson plan would be to answer questions on sports (Sternberg, 1998). Sternberg (1998) claims that applying the triarchic theory to the classroom curriculum aligns the lectures to the assessments; therefore, teachers need to teach to the exams and pupils need to learn from test-taking in order be active thinkers. Additionally, Sternberg (1998) affirms that creating a lesson plan that does not teach to a test does not use instructional time wisely. Gardner (2006) accuses Sternberg of disregarding peoples' ability to process information through visual, bodily gestures, natural, and intrapersonal activities. Also, Gardner (2006) warns Sternberg that his measurements of intelligence are similar to the traditional psychometric, focusing on linguistic and logical-mathematical intelligence. Sternberg (1989) argues that the MI theory does not describe the cognitive processes of intelligence such as

how people read and write for linguistic components. Sternberg (1989) disputes the claim that MI theory views intelligence as different and separate abilities; however, Gardner (2006) has stated that when resolving a task these abilities can work separately or work together to complete the task. Sternberg (1998) claims that Howard Gardner's theory should be named "the theory of many talents" because human intelligence is needed to fit in a society; however, many people do not have the musical or kinesthetic abilities and they are doing well within society.

Although these theories are not going to be observed in the intervention proposed in this paper, it is essential to note the difference among them. These three distinct theories differ from Gardner's theory of multiple intelligences in regard to their view of human intelligence and hold traditional aspects within the theory or the application of the theory to the school setting. For example, Spearman's and Carroll's theories have the traditional aspects of the g-factor, whereas Sternberg's theory favors teaching to a test.

Research Applying Multiple Intelligence to the Classroom

Since the publication of Howard Gardner's book "Frames of Mind: The Theory of Multiple Intelligences" in 1983, educators have been applying his theory to the school curriculum to assist students that were having difficulties learning with traditional methods. Multiple Intelligence assists students by focusing on the intelligences (mental skills) with which they are most comfortable, thereby making learning simple and enjoyable (Arnold, 2007). Researchers and educators have suggested that integrating Gardner's multiple intelligence as distinct learning and assessment strategies improves students' academic achievement.

Pre-school programs have applied Gardner's theory to the class curriculum to increase student's cognitive skills. Delgoshaeia and Delavaria's (2012) research study observed the influence of MI and traditional teaching strategies on cognitive skills such as sequential thinking, problem solving, notion of the mind, memory, observational abilities, and the five senses. Children were placed in either the MI condition or the control condition and were given a pre-test and post-test. Delgoshaeia and Delavaria (2012) found that preschool

classrooms that applied MI to the curriculum had an increase in scores in all the cognitive skills compared to students in the control condition. The authors suggested that early childhood educators need to devise a lesson plan that encourages preschoolers to be active in identifying and resolving issues. In particular, the curriculum needs to focus on the children's cognitive skills. Cognitive abilities such as memory, observation, perception, problem solving, and thinking assist children in understanding and creating their perceptions of society. Gardner's MI can provide children with favorable occasions to develop cognitive skills. Multiple intelligence allows children to acquire knowledge, develop imagination, implement their understanding, and become active learners (Delgoshaeia & Delavaria, 2012).

Multiple intelligence has also been shown to be an effective learning intervention for kindergarteners with literacy difficulties. Brand's (2006) MI intervention aimed to assist students in identifying lower and upper case letters, phoneme segmentation, the ability to combine letters into nonsense words, and word use (the ability to understand and use proper syntax, semantics, and grammar). The following are some child-centered MI activities utilized by the teacher and the researcher. Children with

dominant bodily-kinesthetic intelligence learned their alphabet by making letters out of clay and played scavenger hunting for letters. In the intrapersonal center, students identified letters, found drawings that matched the letters, and pasted them together. Musical intelligence dominant students would combine letters into nonsense words by changing song lyrics into nonsense words. Children in the logical-mathematical intelligence center would generate nonsense words as they said the alphabet in order. To recognize phonological sounds, students with strong visual-spatial intelligence colored pictures of objects with the same beginning or ending sounds, whereas kindergarten students with intrapersonal intelligence shared letter word texts with classmates. To use words appropriately, students with naturalistic intelligence would write stories with extensive detail on the natural habitats, whereas children with linguistic intelligence would re-tell stories read by the teacher in their own words. In a class activity, children caught letters and words out of a fishing container and created sentences or words. Brand's (2006) seven week MI intervention was found to help student's ability to identify and learn the sounds of letters (phoneme segmentation), and the ability to combine letters into

nonsense words and actual words. Although students showed improvement in alphabet awareness, it was insignificant. Prior to this study most of the children did not have any knowledge of these literature concepts; however, they made a lot of progress during the intervention. The activities performed allowed students to understand and make connections among different aspects of the material. As the lesson progressed the students began to sort information and develop more complex sentences. Brand recommends that students in poor communities should have MI curricula to avoid academic difficulties and provide students with the resources for school readiness. Brand (2006) suggested that MI is an effective intervention to use with children who are at risk of learning problems and that it avoids the traditional rehearsal strategies, thereby helping students succeed in literature.

Learning English as a second language can be difficult, especially if the students are in Kindergarten and first grade. Kindergarten and first grade children have not yet mastered the abilities of reading and writing in their native language and learning another language can cause distress. Applying MI to the curriculum can support language learning for young ESL students. Researchers Stăncună and Crăciun (2011) generated activities that

would motivate students to be active learners while having fun participating in the lesson plan. Children participated in activities such as games, songs, and body movements and these activities included visual, body-kinesthetic, interpersonal, and musical intelligence.

Kindergarteners' English lesson plan started with a "Hello" song to indicate to the children that it was time for English and finished with a "Good Bye" song to indicate to the children the end of the lesson plan. Additionally, educators incorporated Bob, the mascot that pretends to be friends with the students and encourages children to participate in class activities. Bob instructed students to perform body-kinesthetic and musical-rhythmic activities such as sitting down/standing up, dancing, closing, and opening doors, singing, and reciting poems. Students played games with Bob that helped them recognize color names in English. In these games, all the colored chairs were placed in the center of the room and students were instructed to dance around the chair until Bob told them in which color chair not to sit on. Another activity was to put up animal posters in the classroom; then, Bob would instruct the children about which animal posters to go and imitate. Children who

attended to the incorrect animal poster had to sit in the "Stop chair." The stop chair was like a time-out chair.

The kindergarteners' feelings towards these activities were of excitement, relevance, and active learning, even when the activities were repeated. At first, the activities were challenging because of the language barrier. Soon, however, children began having fun in activities such as imitating and attributing appropriate behaviors to the occasions. Stăncună and Crăciun (2011) concluded from their systematic observations that 70% of the kindergarteners learned the English material and could apply it to related situations. Ninety percent of the kindergarteners were able to comprehend and behave appropriately to English instructions (Stăncună & Crăciun, 2011). Games were found to assist in engaging students and help them understand how material was utilized in the activities (Stăncună & Crăciun, 2011). Continuously involving Kindergarteners in the same activities allowed them to feel secure and accomplished because they were learning a second language.

First graders had a similar curriculum to the Kindergarteners. It incorporated Freddie the frog as an English instructor. The purpose of the intervention at this grade level was for the MI curriculum to prevent

children from being passive learners, utilize the English language to label items and speak appropriately under any circumstance. Freddie the frog would tell small stories to the students. The stories aided the acquisition of English by allowing students to prophase what will happen next in the stories, build on characters, and foresee the conclusion of the stories. Each story would help students acquire the language and it provided activities such as songs, rhymes, and tongue twisters. Educators view singing songs as methods to observe and assess students' understanding of the foreign language, particularly whether they are pronouncing words correctly and attributing the proper bodily expression to the lyrics. Students view singing songs as pleasurable time listening, learning a different language, memorizing words, and having fun. In one month, first graders were found to learn more than 50 English words (Stăncună & Crăciun, 2011). First graders learned words that classify items (labels), word structures (e.g., It's a pencil), and learned words to perform certain actions and functions (e.g., Come on! hurry up). Overall, creating a fun curriculum that applies visual, kinesthetic, intrapersonal, and musical intelligence engages students

without extra efforts, and children are motivated to be active learners (Stăncună & Crăciun, 2011).

In a case study, two first grade teachers applied Howard Gardner's theory to the health lesson plan with the aim of promoting student-centered learning strategies and for students to develop a meaningful understanding (Liess & Ritchie, 1995). Specifically, Gardner's theory was applied to the health lesson plan. The approach consisted of distinguishing stressful and pleasurable occasions, showing fondness towards people and events, and being aware of and responsive to the needs of disabled individuals. Children were to choose between seven intelligence centers and participate in the activities. A logical-mathematical activity that centers on teaching students sensitivity towards disabled individuals was counting and calculating the space for wheelchair access. Students who participated in intrapersonal activities wrote journal entries on the computers, while students who participated in interpersonal activities observed photographs of individuals helping one another. Body-kinesthetic activities such as puppet role play assisted students in displaying fondness to friends and love to family numbers. In the verbal-linguistic center, children learned how to display their affection towards

family members and friends by reading books on the topic of health. To differentiate stress and pleasurable events, children in the musical center realized that listening to loud music causes stress and listening to music at a low volume causes relaxation. A visual-spatial activity for distinguishing stress and pleasure was creating graphics and drawings on how to control stress.

Liess and Ritchie (1995) noted that students understood all three health topics because the children made proposals such as the use of braille sign in school in order to make the educational environment more comfortable for the visually and hearing impaired. The children also learned stress management techniques, and portrayed appropriate physical affection. Not only did children learn the three health topics but they also obtained other abilities usually not incorporated in traditional curriculum such as being active learners, developing theatrical performances, displaying sportsmanship, assisting peers in classwork, composing music, and using technology adequately. Finally, Liess and Ritchie (1995) found that MI allows teachers to develop an enthusiastic and rich curriculum based on student strengths, and that children learned the material at a faster pace than with the traditional lesson plan.

The concept of time can be difficult to understand and boring for some first grade children. Introducing MI to the complex concept of time has been found to be an effective teaching technique for school achievement (Armstrong, 1994). Armstrong (1994) initiated his time lesson plan with the linguistic activity of narrating a story called "Land of No Time." In this story the kingdom with no time experienced the problem that their citizens never attended their engagements on time; therefore, the King decided to send a group of explorers to find the Kingdom of Time. Once the explorers found the Kingdom of Time, they meet the O'clock family that had the task to indicate the time to the people of the kingdom. The O'clock family had 12 children and in order to indicate the correct time to the kingdom, everyday twice a day one of the children would signal an hour by reciting a song called the "Timely Little Chime". The students were also instructed to individually draw (visual/spatial), summarize (linguistic), and share their interpretation of the story to the class. Musical, interpersonal and bodily-kinesthetic intelligence were included in the lesson plan by having the students sing during the time they used their hands to make clocks.

Based upon the observations made on the time lesson plan, Armstrong suggested that MI provides assistance in generating successful learning strategies for children. Besides helping educators build different efficient and exciting learning strategies, MI facilitates the development of practical skills such as acting, reporting, analyzing, singing, drawing, engineering, developing social skills and resolving issues. Armstrong (1994) advises educators to implement MI in all the subjects in middle school and in high school.

Science can be a complex subject to understand. However, incorporating MI to the lesson can also help increase students understanding. Ozdilek's (2010) research study applied MI to the sixth grade science classes to teach the scientific concept of the participle model of matter. Specifically, the purpose of the study was to examine sixth grade students MI portfolios, and to assess differences between academic achievement and students MI portfolios. Ozdilek (2010) found that all sixth grade students had developed all eight multiple intelligences. Multiple intelligences such as mathematical-logical, visual/spatial, and interpersonal were found to be associated with higher academic performance on the participle model of matter (Ozdilek, 2010). In other

words, students who were stronger in these areas of intelligence tended to have the best understanding of the participle model. Linguistic intelligence was negatively associated with student's academic performance on the principles of matter (Ozdilek, 2010).

On the other hand, Ozdemir, Guneysu, and Tekkaya (2000) investigated the effect of MI learning strategies and teacher-centered learning strategies on fourth grade student's comprehension and memory recall (retention) on the scientific concept of the diversity of living things such as animals, plants, fungi, bacteria and protista. Teacher-centered learning strategies provide students with lectures, reading and writing assignments, and homework. MI curriculum generated seven different learning centers. Students were allowed to participate in any of the centers. When studying the anatomy of flowers, students would choose between all the seven MI centers. In the Intrapersonal center, pupils carefully observed and made sketches of a flower's anatomy. Students in the intrapersonal center inspected, made pictures of, and had group conversation about the anatomy of the flower. The musical center had student activities such as writing musical pieces and singing songs about the anatomy of the flowers. Spatial intelligence was incorporated into the

flower lesson plan through creating diagrams, pictures, and building play dough sculpture. In the Kinesthetic center, students employed their bodies to describe and analyze the anatomy of the flowers. Students in the linguistic center researched and read topics on flowers. In the logical-mathematic center, students participated in matching card games, puzzles, and scientific experiments. The Teele Inventory of Multiple Intelligence was utilized to identify which intelligence(s) students were dominant or weak in. A diversity of living things concepts test was generated to assess student's knowledge before the intervention, immediately after the intervention, and two months after the intervention. The research experiment was conducted for seven weeks. The pre-test scores on the living things concepts assessment indicated that prior to the intervention there was no difference in comprehension on the scientific concept between the MI group and teacher-centered group. On the posttests, Ozdemir et al. (2000) found that students who were in the MI instruction group held information longer (on both posttests) than students who experienced teacher-centered instruction. Throughout the intervention, students in both conditions were strong in logical-mathematical intelligence. Students in the MI condition increased their employment of

intelligences not commonly used at school such as spatial, musical, and interpersonal intelligence. In addition, students in the MI condition also reduced the application of regular school intelligences such as linguistic and logical mathematical intelligence. Students in the teacher-center instruction did not utilize other intelligences, they primarily engaged in logical mathematical intelligence. Ozdemir et al's. (2000) findings imply that MI instruction assists students in the development of all eight intelligences.

Logical-mathematical and linguistic intelligence are the most frequently applied intelligences in school settings. Students who are dominant in other intelligences might have difficulties in learning class material. Incorporating MI into the lesson plan can increase student's cooperation, learning enthusiasm, knowledge, and efficiency. Science students in the MI instruction condition learned the materials faster and maintained the information longer than students in the teacher-centered condition. Ozdemir et al. (2000) concluded that MI teaching strategies increase student's insight and memory retention because they allow students to be active in the class setting by writing, painting, role playing (dramatizing) and solving puzzles.

In Turkey, 75 high school students participated in an experiment that examined the traditional learning strategy and the MI learning strategy in a tenth grade chemistry class. Participants in the traditional learning strategy condition were given lectures, assignments, and were shown experiments. Participants in the MI learning condition were given activities that ranged from theatrical plays, listening to music and stories (included stories with logic), puzzles, maps, and complicated handouts. Both groups were given a pre-test and posttest for achievement, retention, and attitude towards chemistry. Participant's pretest on achievement and retention indicated that before the intervention, the two groups were similar (Akkuzu & Akcay, 2011). After the intervention, the groups differed in their achievement and retention. The findings suggested that students in the MI learning strategy condition had better posttest achievement and retention scores than the students in the traditional learning strategy (Akkuzu & Akcay, 2011). With regards to the chemistry attitude test, on the pre-test, students in the traditional learning strategy group did better than the students in the MI learning strategy group (Akkuzu & Akcay, 2011). After intervention, students in the MI learning strategy group showed more positive attitudes toward chemistry, whereas

students in the traditional learning condition maintained the same attitudes toward chemistry (Akkuzu & Akcay, 2011). Overall, the findings suggested that students in the MI condition were more motivated to learn.

Technology has impacted education deeply; today more students use computer programs such as Microsoft to finish homework assignments and projects. Although computer classes are considered electives, MI has been implemented into these types of classes. A study conducted by Özdener and Özçoban (2004) compared a traditional learning strategy with a MI learning strategy among 75 sixth grade students in a computer class. To assess these two learning strategies, students were assigned to complete various Microsoft Power Point computer projects. Participants in the traditional learning strategy condition were taught through lectures, while participants in the MI learning strategy condition learned through peer collaboration and through individual computer projects. The observed types of MI were linguistic, logical-mathematical, spatial, and interpersonal. The MI learning strategy condition was split into two groups in which students in group one were strong in the same or a closely related type of intelligence and students in group two differed from one another with regard to their strongest type of

intelligence. Özdener and Özçoban's (2004) findings indicated that the two MI groups had a greater increase in computer class grades than the traditional learning condition. In particular, students in the MI learning strategy condition performed better in the computer class than students in the traditional learning strategy condition. This was because participants in the former condition were allowed to be artistic, brainstorm, and solve Microsoft issues (Özdener & Özçoban, 2004). Students who differed in their areas of strength did better than the students who share the same areas of intellectual abilities (Özdener & Özçoban, 2004). Özdener and Özçoban (2004) suggested that the group with different areas of intellectual strengths increased their computer class grades because they were allowed to share information and assist each other throughout the project.

MI has also been applied as an academic intervention for students with special needs. In particular, academic interventions have aimed to improve the performance of students with learning difficulties in the subjects of mathematics, language, and social science. In one study (Perez & Beltran, 2008), students' age ranged between 11 to 16 years old. Eleven to 13 year old children had an academic level similar to that of a normal child in the

first and second grade. Fourteen to 16 year old children had an academic level similar to that of a normal third and fourth grade student. Perez and Beltran (2008) created a Pedagogic Model that incorporated MI and Bloom's taxonomy to increase the academic performance of students with learning difficulties. The Pedagogic model was developed to identify student differences in intelligence strengths and weaknesses, motivation, and to enable teachers to respond to student's needs and modify their teaching strategies. The intervention group engaged in activities that incorporated all eight multiple intelligences and Bloom's taxonomy. Some activities were introduced in order to help children learn how to identify and arrange information were that students organized mathematical concepts in terms of their emotions throughout the year (intrapersonal), created maps (spatial), and linguistically remembered concepts. Students in the control group engaged in the traditional teacher-centered activities in which teachers lecture, show step by step instructions, and provide students with assignments. The Pedagogic Model which includes MI and the Bloom's taxonomy was found to increase students' general understanding and academic success in mathematics, language and social sciences. In addition, throughout the

intervention teacher-student relationships assisted in creating positive outcomes. Perez and Beltran (2008) suggested that this intervention increased academic performance because it centered on students' weak and dominant intelligences. For instance, students were encouraged to communicate their academic understanding through any intellectual domain-not just the traditional domains. Students that were given this chance to express their understanding of the school materials through MI experienced an increase in self-reliance and were encouraged to learn the material by using their dominant intelligence and positive teacher's feedback (Perez & Beltran, 2008).

Gardner's MI theory has also been applied to middle school students having difficulties in reading. In addition to examining the effects of MI and the traditional teaching strategy on reading performance, this study compared reading performance between students in the MI condition enrolled in private schools and those enrolled in government schools. Middle school students exposed to the MI learning method improved their reading quality more than middle school students using the traditional learning method. Interestingly, middle school students in the MI condition who were enrolled in private

schools had a greater improvement in reading scores than middle students in the MI condition who were enrolled in government schools (Al-Balhan, 2006). Al-Balhan suggested that private school students demonstrated high levels of improvement because the teachers adhere better to their students' academic needs. Educators' knowledge of student intelligence can facilitate teaching the curriculum in a manner that will favor the classroom instruction by using the appropriate learning methods that are fast and efficient. Students who recognize their dominant and weak intelligences can support their abilities to learn school material and have positive learning experiences even when dealing with difficult subjects (Al-Balhan, 2006). Implementing MI in the classrooms gives educators the flexibility to teach subjects in various manners that benefit students. As a result, students learn actively and are ready to achieve in society (Al-Balhan, 2006). Al-Balhan (2006) suggested that if teachers apply MI-based instructional strategies, teachers will be able to support students with different intellectual abilities to learn the materials and help students develop all the intelligences. In addition, students who recognize their current areas of intellectual strength can learn the

material faster and use adequate studying strategies (Al-Balhan, 2006).

Traditional assessment methods categorize children as below average, intermediate, or advanced, yet these tests do not account for cultural and language differences (Maker, 1992). Minority groups have different cut off scores, thereby putting children into proficient level classes causing discomfort and labeling children. Maker (1992) developed a placement test with the concepts of MI which takes into consideration culture, ethnicity, and language diversity. Children completed tasks that integrated MI and were graded in their ability to understand the problem, choose adequate approaches or strategies, and logically solve the tasks. Teachers and assistants would explain instructions, ask questions, and engage students in the tasks, as well as observing and collecting data. The visual-spatial assessment consisted of building shapes and making pieces of papers such wildlife, landscapes, and other shapes of their choosing. The data collected from the visual-spatial assessment included the level of difficulty, degree of similarity to the shape the child had in mind, creativity, and levels of happiness. For the logical-mathematical intelligence assessment, children made shapes out of square blocks from

a textbook. Students who experienced difficulties were given suggestions on how to make shapes with the blocks. The strategies that the children used were recorded and after completing the assessment children had to answer questions regarding the shapes. This assessment concerned children's speed, logical skill in connecting pieces, levels of stress, and strategies. For the linguistic test, children had to put objects into categories, explain the logic behind the items in a category and create a story about the items. Teachers would record the logic of categorical placement, evaluate the story description, story dialogue, and beginning, middle, and ending. Students who did the logical-mathematical tasks were assessed based on the completion of math problems that vary in three levels of difficulty. These problems involved answers that require explanation, awareness of number patters and value, and mathematical properties (ex. 3 + 4 = 7, 4 + 3 = 7). Throughout all these assessments, children were observed for their interpersonal and intrapersonal intelligence. In particular, teachers observed children's abilities to cooperate with others or work independently. After finishing the assessment, the teachers and assistants would discuss and evaluate the children's performance.

Marker (1992) notes that she has used this assessment test with different native groups in Arizona. Marker has observed that the traditional assessment has not placed children appropriately but the MI assessment has placed them in adequate classes. Multiple intelligence assessment can be use to generate a lesson plan that meets student needs, recognizes minority differences, and helps children to develop the ability to resolve problems using the intelligences (Marker, 1992).

In conclusion, research studies have shown that in comparison to the traditional teacher-centered learning curriculum, MI interventions have increased students' academic grades. That is, an MI curriculum can improve academic performance regardless of the subject, grade, age, learning difficulties, and school environment (government or private schools). Howard Gardner's theory not only helps children learn the material covered in an exciting manner, but also assists students in maintaining and recalling the information. The literature also suggest that MI allows students to become active learners, creative, self-confident, and develop a positive attitude towards academics. Educators who applied Gardner's theory to the lesson plan can identify students' strengths and weaknesses, engage students with effort, support students'

learning motivation, and promote fast and effective learning strategies.

Although applications of MI Theory have been assumed to positively impact children's academic achievement motivation, there is very little research that seeks to directly test this assumption. The research proposed in this paper will use goal orientation theory as a basis for designing an assessment of the extent to which achievement motivation can be enhanced through an application of MI theory to the classroom.

Achievement Goals in the Elementary Years

A person's rationale and motivation for performing educational actions and using learning strategies is called achievement goal orientation (Midgley et al., 2000). There are two achievement goal orientations and each has distinct sets of mental processes, motivation, and behavioral functions (Midgley et al., 2000). Depending on which academic goal orientation students have, they can adjust well to academic changes or have academic difficulties (Midgley et al., 2000). Therefore, achievement goals have important implications to the elementary school years.

A learning goal orientation emphasizes students' ambitions to become academically brighter (Dweck, 1999). In a learning goal orientation (often called mastery goal orientation), student's intentions in approaching academic tasks are to gain knowledge, competence, or skill (Midgley et al., 2000). The learning goal orientation has the most favorable learning behaviors because students view learning as exciting and engaging, and learning is automatically completed (Midgley et al., 2000).

Dweck (1999) noted that students with performance achievement goals want to appear intelligent. There are two distinct performance goal orientations, the performance approach, and the performance avoidance goal orientation (Midgley et al., 2000). In a performance approach goal orientation, students are determined to display their cognitive abilities to their peers and teachers (Dweck, 1999; Midgley et al., 2000). Students with performance approach goals show positive and negative learning behaviors (Midgley et al., 2000). By contrast, students with a performance avoidance goal orientation are motivated to prevent others from perceiving their academic inabilities (Midgley et al., 2000). Negative learning behaviors are closely related to performance avoidance goal orientation (Midgley et al., 2000). Performance goal

oriented students view their performance outcomes as direct measures of their intellectual abilities (Dweck, 1999). Therefore, students with a performance goal orientation who do not successfully complete an assignment perceive their failures as having to do with a lack of intellect (Dweck, 1999).

Dweck (1999) stated that students are always caught between the learning and performance goal approaches. In other words, students must choose between engaging in academic assignments that are demanding, difficult, and expose the child to public demonstrations of mistake-making behaviors, or to participate in tasks that are easy but do not enable them to gain any new insight while allowing them to be portrayed as smart (Dweck, 1999). Students with performance goals are not likely to engage in challenging, error-making learning activities (Dweck, 1999).

As previously mentioned, these achievement goals have important implications for elementary school settings. Regardless of the students' school surrounding, academic abilities, culture, and age differences, these school achievement goals have negative and positive outcomes on students' behaviors, psychological health, and grades. Gifted students also have achievement goals that impact

their academic success. A longitudinal study followed talented fifth graders until the eighth grade to examine their personal school achievement goals. Talented students experience both kinds of achievement goals (learning goals and performance goals) and the combination of both achievement goal orientations (Ablard, 2002). Most students in this study displayed high to extremely high learning goal orientation levels, which indicates that regardless of whether the material was complex or not, students were determined to absorb and learn all the information (Ablard, 2002). Additionally, gifted learning goal oriented students welcome challenges and utilize strategies that will assist them in understanding and retaining the information (Ablard, 2002). Talented performance-orientated students avoided all challenging situations and were more likely to experience failure (Ablard, 2002). Although both talented learning and talented performance goal oriented students perceive themselves as confident and determined, they also view themselves very distinctly (Ablard, 2002). Gifted students with learning goals who perceive themselves as, "assertive, confident, ambitious, determined, enterprising, conscientious, and painstaking" (Ablard, 2002., p. 226).

Gifted students with performance goals perceive themselves as, "aggressive, argumentative, opinionated, confident, determined, forceful, and a show-off" (Ablard, 2002., p. 226).

In contrast to students with learning goals who do not feel a need to demonstrate their academic abilities to others, students with performance goals enjoy displaying their academic skills to others (Ablard, 2002). Performance oriented students were more likely to experience social problems with teachers and peers because they are highly disagreeable, hostile, narrow minded, and have the urge to exhibit their academic achievement (Ablard, 2002). Ablard (2002) noted that learning goal oriented gifted students had incremental beliefs about their intelligence. That is, gifted students with learning goals believe that with effort, they can increase their intelligence and that their intelligence is not fixed (Ablard, 2002).

Bong (2009) researched first to ninth grade Korean math students' achievement goals and looked for age differences in this regard. Third grade students and older were found to be able to recognize various reasons for participating in achievement activities and to have guidelines to determine their mathematical skills (Bong,

2009). Children from first to fourth grade reported that they completed their mathematics assignment because they have learning achievement goals. That is, first to fourth grade students were interested active learners and wanted to acquire more math skills. Surprisingly, children between first and fourth grade were more likely than upper grade children to communicate that they experience all types of achievement goals (performance-approach, performance avoidance, mastery approach, mastery avoidance). Learning approach followed by performance approach were the two goal approaches most often experienced by students between first and fourth grade. Besides learning goals that engage students in academic behaviors, performance goals are often adapted by young elementary students because they like to receive peer and teacher approval. Bong noted that elementary students between first to fourth grade do not perceive their intelligence as an entity, but as a malleable and incremental capacity. These first and fourth grade students have an incremental theory of intelligence because they are active learners, focus on gaining knowledge, and do not view intelligences as fixed.

On the other hand, fifth to ninth grade students often expressed performance approach goals in mathematics.

Performance and learning approach goals have a distinct psychological and behavioral aftermath on these older students. In general, students with learning approach goals in mathematics experienced more self-efficacy and applied effective learning strategies while students with performance goals were found to express more anxiety and to avoid help-seeking (Bong, 2009).

Elementary students' orientation goals have been associated with intrinsic and extrinsic motivation and with identified and introjected regulation. Sungur and Senler (2010) found that primary school students tend to endorse both learning-approach and performance-approach goals rather than learning avoidance and performance avoidance goals. Students engage in school activities to learn and become proficient in the school material, demonstrate academic abilities to peers and teachers, and to receive the highest scores in class (Sungur & Senler, 2010). Both performance approach orientation and learning approach orientation are associated with high interest and curiosity while engaging in school work (intrinsic motivation) (Sungur & Senler, 2010). Learning goal oriented students did not perceive school activities as personally relevant (identified regulation), nor did they experience interpersonal academic dilemmas (introjected

regulation) and definitely did not participate in assignments to receive awards or recognition (external regulation) (Sungur & Senler, 2010). Performance oriented elementary students experienced concern over how to approach an assignment (introjected regulation), but did not experience classroom competition (Sungur & Senler, 2010). Students with learning avoidance and performance avoidance goals were found to participate in school tasks to receive rewards and avoid punishments (extrinsic motivation), and these goal orientations were associated with students' competence expectancies (Sungur & Senler, 2010). In detail, learning avoidance oriented students seek recognition and to prevent disapproval when engaging in school work (external regulation), perceive a competitive classroom setting, complete assignments to receive high academic scores (external regulation), and have conflicting feelings on how to approach an assignment (introjected regulation) (Sungur & Senler, 2010). Sungur and Senler (2010) suggested that education should have a class setting that increases intrinsic motivation and encourages approach goals regarding performing, learning, and studying strategies, and learning from students' mistakes, rather than having a class setting of competition and poor motivation (Sungur & Senler, 2010).

Similarly to personal achievement goals, the influence of classroom achievement goals on students' academic outcomes have also been observed. Linnenbrink (2005) conducted a research study to examine fifth and sixth grade mathematic students' classroom achievement goals and personal goal orientation in relationship to their motivation, academic assistance, cognitive engagement, and achievement. Students were assigned to one of three classroom goal structures; learning, performance, and a multiple achievement goal structures. In the learning classroom condition, the teacher emphasized to the students the need to improve and gain knowledge, whereas in the performance condition, teachers encouraged students to display their academic abilities. The multiple achievement condition was a combination of learning and performance goal orientations, meaning that teachers endorsed improvement, learning, competition, and demonstration of academic abilities. In terms of assistance, students in the mastery and multiple goal classroom structures were less likely than students in the performance orientation classroom structures to solicit the answers to mathematics questions (Linnenbrink, 2005). Classroom goal structures also influenced students' mathematic achievement. On the fifth and sixth grade

mathematic post-test and follow up test, the multiple and performance goal classroom scored higher than the learning goal orientation (Linnenbrink, 2005). Overall, performance goal classrooms were associated with students' high academic performance whereas learning goal classrooms were linked to favorable strategies for seeking academic assistance to understand the material (Linnenbrink, 2005). Multiple goal achievement was associated with both high academic success in mathematics and requesting assistance in understanding the information (Linnenbrink, 2005). Elementary students with learning goals engaged in motivation and cognitive processes such as continuously striving to solve math problems, creating strategies, and actively organizing and assessing their math assignments (Linnenbrink, 2005). Linnenbrink (2005) suggested that elementary teachers who have a performance classroom structure should avoid creating competition among individual students and create a competition among a small group based on improvement and understanding instead of performance.

McNeil and Alibali (2000) conducted a research experiment to observe whether third and fourth graders learned mathematical concepts and generalized the information from the instruction to other mathematical

problems through the use of learning and performance goals. There were three conditions in this experiment; learning condition, performance condition, and the control condition. Participants were assessed prior to, immediately after, and a few days after the mathematical intervention. McNeil and Alibali (2000) found that after the instructional procedures, students in the learning and the performance goal conditions increased their understanding and correctly transferred mathematical concepts. Students in the control condition used the incorrect mathematical strategy where information was less likely to be understood and transferred (McNeil & Alibali, 2000). McNeil and Alibali (2000) suggested that within class curriculum teachers should generate academic achievement goals to guide, focus, and engage students in behaviors that will increase understanding and transfer over time.

Token economy classroom structures have been widely employed by teachers to improve students' academic grades. Self-Brown and Mathews II (2003) observed whether this setting influenced student motivation. In particular, Self-Brown and Mathews II (2003) assessed fourth and fifth grade students learning goals and performance goals on three different mathematics classroom structures. The

different mathematic classroom structures were the token economy, the contingency contract, and a control condition. Token economy classroom structure rewarded students with money for completing school assignments and homework assignments, obtaining mathematics test scores above B's, and successfully achieving their personal mathematics weekly goals. Contingency contract classroom structures afforded students the ability to write down personal goals for the mathematic class and receive insight from the researchers on successfully obtaining a goal and to formulate new goals. Similarly, students in the control classroom create personal achievement goals for the mathematic classroom with the assistance of a researcher; however, they did not receive any input on their achievements. Self-Brown and Mathews II (2003) found that control and token economy classroom structures had less students generating learning goals in comparison to a classroom structure that allow students to develop personal goals and receive feedback (contingency contract). Mathematics students in the contingency contract develop less performance goals than learning goals (Self-Brown & Mathews II, 2003). Interestingly, students in the token economy classroom structure form

more performance goals than students in the control classroom (Self-Brown & Mathews II, 2003).

The relationship between third to fifth grade reading and writing classes and achievement goals was observed in a longitudinal study. Meece and Miller (1999) note that from the fall to the spring, fourth and fifth grade students' learning and performance approach goals decrease, whereas avoidance work orientation increased among the students. In other words, children hope that they do not have to complete their assignments and desire to just turn-in the assignment without understanding the information or without having to display their reading and writing abilities to others. In contrast, in other goal-oriented literature, Meece and Miller (1999) noted that as children continue their elementary career, their performance and learning goal approach declines. Older elementary students just wanted to complete the school work, thereby disregarding socially accepted school behaviors and were not interested in understanding the reading and writing material.

Teachers often and naively stress the importance of teacher-centered classroom settings in order for students to perform well in standardized state examinations that will be given after the third grade. A third grade

classroom intervention was designed to increase interest and introduce challenges to the academic settings. The intervention allowed students to participate with other students in interesting long and difficult reading and writing assignments, provide feedback, and utilize time to finish assignments. The findings indicated that throughout the intervention students had stable learning approach goals in their reading and writing classes. Meece and Miller (1999) suggest that teachers should avoid teacher-centered classrooms, worksheet exercises, and teaching to standardize state tests. Instead, they should provide students with a class environment of abstract thinking and problem solving.

In elementary school, children can receive after-school classes to obtain a better understanding of a subject. Agbuga, Xiang, and McBride (2010) studied the relationship between third to sixth grade student's achievement goals and disruptive behaviors in a physical education after-school program. The objective of the after school physical education program was to involve students in physical activities, to change students' negative perspective on exercising, and advocate a healthy diet. The achievement goals being studied were mastery goals, performance-approach goals and performance-avoidance

goals, whereas the disruptive behaviors being observed were lack of participation, ignoring instructions and distracting peers. Agbuga et al. (2010) concluded from surveys and naturalist observations that students in the after-school physical education program with performance-approach goals and performance-avoidance goals tended to perform more negative behaviors than learning goal students. Students with performance-approach goals reported performing negative activities such as distracting their peers, being uninvolved in the class, and disregarding instructions. Performance-avoidance goal students described themselves as not actively participating in the physical education program. Out of the three achievement goals, learning-oriented students viewed themselves as more likely to participate in the after-school program activities than peers with performance goal approaches (Agbuga et al., 2010).

Overall, the literature suggests that third grade students and higher experience different types of achievement goals regardless of their academic potential. Learning goal oriented students have an incremental perspective. By contrast, performance goal oriented students believe that their intelligence is fixed. The literature typically describes learning goal students as

being assertive and ambitious; whereas performance goal students are described as argumentative, aggressive, and needing to demonstrate their academic potential to others. Furthermore, researchers suggest that educators need to develop a learning goal class setting that focuses on understanding material, engaging students in the curriculum, and avoiding teaching to standardized tests and worksheets.

Goal Orientation and Multiple Intelligence

Generally, research on the impact of MI-based instruction and achievement goal orientation is missing from the existing literature. Research does suggest that interventions based on MI theory have a positive effect on children's motivation to engage in academic tasks (Akkuzu & Akcay, 2011; Stăncună & Crăciun, 2011). Multiple intelligence lesson plans have been found to be exciting (Armstrong, 1994; Arnold, 2007; Liess & Ritchie, 1995; Ozdemir et al., 2000; Stăncună & Crăciun, 2011) even when they are challenging (Stăncună & Crăciun, 2011). There is good reason, however, to expect these interventions to impact children's motivational goals in particular. MI interventions should make students more learning oriented and less performance oriented. For one thing, MI

activities are intrinsically interesting and should promote engagement in them for their own sake and for the positive experiences associated with the mastery and learning process rather than to meet some objective standard of performance. Children naturally enjoy participating in activities such as acting, analyzing, singing, drawing, engineering, socializing, and writing (Liess & Ritchie, 1995; Ozdemir et al., 2000). Learning oriented students are active learners (Agbuga et al., 2010; Midgley et al., 2000; Sungur & Senler, 2010) and utilize a variety of effective learning strategies (Ablard, 2002; Bong, 2009; Linnenbrink, 2005; Sungur & Senler, 2010) that could represent multiple distinct intelligences. MI-based activities have been associated with the development of active learning (Al-Balhan, 2006; Delgoshaeia & Delavaria, 2012; Stăncună & Crăciun, 2011) and have been found to assist students in utilizing appropriate learning strategies (Al-Balhan, 2006). Both Multiple Intelligence interventions (Al-Balhan, 2006; Liess & Ritchie, 1995; Ozdemir et al's., 2000; Perez & Beltran, 2008) and a learning goal orientation have been associated with learning material faster and maintaining information longer (Ablard, 2002; McNeil & Alibali, 2000).

Therefore, based on these premises it is expected that the MI intervention can impact children's achievement goals.

The Purpose of the Current Study

Previous research studies suggest that implementing MI in the school curriculum is an effective instructional strategy because students exposed to MI interventions increase their academic grades, become more actively involved in the learning process, and find MI activities to be more interesting than traditional activities. Rettig (2005) advises educators to implement MI into young children's regular and special education classes because the theory's concepts support the development of verbal abilities, improve control over motor skills and the senses, and deepen the understanding of nature. Rettig also advocates the adoption of Gardner's ideas because MI interventions are linked to superior understanding of information and to maintaining the information longer. According to Rettig, traditional lesson plans focus on logical-mathematical and linguistic intelligence which are associated with the left hemisphere responsible for reasoning, understanding complex signs and shapes, language retention, and the order of ideas. Multiple intelligence lesson plans will endorse the right *and* the

left hemisphere. The right hemisphere is responsible for visual learning, drawing, musical learning, and affected thinking. Special needs instruction that employs Gardner's ideas allows students to identify their strengths and their unknown abilities thereby assisting teachers in generating lesson plans based on the student's competence (Rettig, 2005). Although students can benefit from implementing multiple intelligence in the curriculum, some educators continue to have a traditional, teacher-centered curriculum featuring worksheets, and reading and answering questions. Furthermore, adaptive achievement goals focusing on personal mastery rather than performance may be facilitated by the use of MI interventions. This is an important and under-researched contribution of MI-based curricula because students who demonstrate learning goals have been shown to earn better grades, and to have a deeper understanding of school material. In addition, they are assertive, confident, and have more social behaviors with peers than their counterpart's with performance approach and performance-avoidant goals.

The present research project applied Howard Gardner's MI theory to the social studies curriculum of a third grade classroom. This intervention seeks to increase student's academic grade scores and learning goal

orientation in the social studies chapter of Old and New Communities. The following hypotheses on the use of an MI-based curriculum with third graders are posed:

H_1: The MI curriculum will influence third grade students' post-test social studies scores and achievement goal orientation. The MI intervention will increase third grade students' post-test social studies scores and students adapted a learning goal approach. Specifically, students who had learning goals maintain the same achievement orientation and continue to improve their academic grade in the social studies assessment. As for performance approach goal and performance avoidance goal students, the intervention increase their post-test social studies test scores and their post-test achievement orientation in this domain develop toward more of learning goal approach.

H_2: Students tended to identify some of the non-traditional activities as their most favorite and the more traditional activities in the curriculum as their least favorite. Students rate the current chapter as more interesting than previous social studies lessons and they

identify multiple, specific goals for learning more about the chapter's topic.

CHAPTER TWO

METHOD

Participants

The participants for this research project were third grade students enrolled at Assumption Catholic School in Los Angeles, California. The sample consisted of 11 third grade children (five boys, six girls, M_{age} = 8, age range: 7-9). All the students were of Latino ethnicity. Students' socioeconomic status was collected from their parents (assessed by way of educational level of parents). The majority of the students' parents had some high school but did not finish (40 percent), 20 percent completed high school, 10 percent had some college, 10 percent completed college, 10 percent had completed between fifth and eighth grades, and another 10 percent had a parent that finished high school while the other parent did not. Children with learning difficulties such as autism, Down Syndrome, language delay, and Asperger's Syndrome were excluded from the project. All the students were treated in accordance with the Ethical Principles of Psychologists and Code of Conduct (American Psychological Association, 2002).

Design for the Study

The design of the present research project was a single group pretest-posttest design. Children were given a pretest to establish participants' baseline on prior knowledge of social studies concepts regarding Old and New Communities. They also receive a pretest of their social studies achievement goal orientation. The independent variable was the intervention based on an application of MI theory to the social studies curriculum. The dependent variable was students' academic assessment scores on the social studies concepts of Old and New Communities and social studies achievement goal orientation. Student's overall mean differences between pretest and posttest were calculated to determine whether the MI intervention increases social studies academic assessment scores and social studies achievement goals. As part of the post-test, children were also asked to indicate their most and least enjoyed activity. Since this is a non-experimental design, attempts were made to identify any potential factors other than the intervention that were operating during the study and that could lead to change in the dependent measures from pretest to posttest.

Materials and Measurements

This MI intervention included the following materials and measurements:

Demographic Questionnaire

The demographic questionnaire collected participants' background information such as the child's sex, age, ethnicity, and socioeconomic status (assessed by the parents' highest educational level). The participant's demographic questionnaire was completed by the child's primary caregiver or parent(s) (See Appendix A for the Demographic Questionnaire).

Social Studies Textbook

The social studies textbook, "Houghton Mifflin History Social-Science: Communities" was adapted to the MI curriculum. The textbook was incorporated into the MI curriculum in order to cover California State Standards and to comply with school policies.

Social Studies Achievement Goals Inventory

The PALS (Midgley et al., 2000) mastery, performance approach, and performance avoidance goal orientation scales was administered to children as a pretest and posttest. These measures were framed in terms of the academic domain of social studies. Learning goal students find learning interesting and enjoyable, prefer a

classroom curriculum and homework that are challenging, and work out problems regardless of whether or not they make many errors. Performance-approach students want to demonstrate to the teacher and students that they are smart and perform assignments better than other students. Performance-avoidance students complete their assignments to avoid looking ignorant and refrain participating in class so as to avoid humiliation. The social studies achievement goal inventory assesses the three goals through the use of six items for each goal. Each of the items on the social studies achievement goals inventory was rate on a one through five rating scale (1 not at all; 2 not very much; 3 somewhat; 4 pretty much; 5 very much) (See Appendix B for the Social Studies Achievement Goals Inventory).

Academic Assessment on Social Studies

The information on Old and New Communities from the Houghton Mifflin social textbook was used by the researcher to generate the academic assessment. The social studies assessment scores were used to determine whether MI curriculum was an effective intervention by comparing students' scores from the pre-test to the post-test. The same assessment materials were used for the pre-test and post-test. There were 12 questions on the Academic

Assessment for Social Studies and students wrote down an answer for each question (See Appendix C for the Academic Assessment on Social Studies).

Multiple Intelligence Survey

As part of the post-test session, students completed a brief set of questions designed to assess their reaction to the curriculum (see Appendix D). They were asked what activities they liked the most and least along with how interesting they found the chapter compared to other chapters. In addition, they were asked about other things they would like to learn about the chapter's main topic - Native Americans.

Student Portfolio

The students' portfolio contains information such as the students multiple intelligence activities and feedback, where possible, on the activities. Students' social studies academic assessment was not kept inside the portfolio because the same assessment was used as a pre-test and post-test to determine whether the MI intervention increases academic assessment scores. Feedback to students did not include answers to any of the questions on the pretest or posttest. The purpose of the portfolios was so that the researcher can monitor students' progress, and when possible the researcher and

child can discuss the improvements and the areas that need improvement (Gardner, 2006).

Multiple Intelligence Curriculum

The multiple intelligence curriculum was generated and implemented by the researcher. The information on Old and New Communities was obtained from the textbook, "Houghton Mifflin History Social-Science: Communities," and was utilized to develop the MI curriculum. The curriculum was 10 school days long and contained the lesson plan's focus questions, purpose, objectives, MI activities, duration, materials, activity assessments, and California State Standards and bibliography (See Appendix E for the MI curriculum). The activity assessments were for school purposes and were not part of the data collected in this project.

Procedure

The research project was approved by the Institutional Review Board at California State University, San Bernardino (See Appendix F for Institutional Review Board Approval). Before conducting this intervention, students' parents signed the informed consent and completed the demographic questionnaire. Third grade

students gave a verbal assent. The following are the steps of the intervention:

Step 1. Students Pre-test on Social Studies Achievement Goals Inventory. Students' completed their social studies achievement goals orientation assessment prior to the MI intervention. Students took approximately 20 minutes to complete the Social Studies Achievement Goals Inventory.

Step 2. Pre-test Academic Assessment on Social Studies. Students had approximately 20 minutes to complete the pre-test social studies chapter assessment on Old and New Communities.

Step 3. Applying Multiple Intelligence Theory to the Curriculum (Intervention). Five main intelligences (linguistic, logical-mathematical, visual-spatial, bodily-kinesthetic and musical) and two supporting intelligences (intrapersonal and interpersonal) were incorporated into the third grade social studies curriculum. The MI intervention lasted ten school days and started on day two and ended on day 11. Each day, one intelligence was the center of the classroom curriculum, however, the main intelligence was supported by one or more other intelligences. The researcher first lectured, then children were engaged

in multiple intelligence activities. The multiple intelligence activities were adopted from Arnold (2007), Armstrong (2009), Kornhaber et al., (2004) and Viola et al., (2007), and the criteria used to grade such activities were from Bellanca et al. (1997), and Viola et al., (2007). During the intervention, the researcher used the students' portfolios to monitor the students' progress, and provide feedback. (See Appendix E for details on the MI curriculum.)

Step 4. Students Post-test on School Achievement Goals Inventory. After the implementation of the intervention on day 12, students once again complete an assessment of their personal achievement goal orientation in social studies.

Step 5. Post-test Academic Social Studies Assessment. Also on day 12, students took the post-test Social Studies assessment on Old and New Communities.

Step 6. Multiple Intelligence Survey. Participants were also given a brief survey (see Appendix D) asking them what their most and least favorite activities were and asking them to identify something they would like to learn on their own about the topic of the

chapter. They also compare the curriculum to previous chapters they have covered.

Key Elements of the Intervention

The following are some examples of the activities that students who are dominant in specific intelligence areas tend to engage in and the MI activities that were incorporated into the intervention:

Musical Intelligence. Students with dominant musical intelligence enjoy singing, listening to music, playing or humming sounds, and can express their feeling or attitudes in music. Musical intelligence was applied to the curriculum by creating music lyrics and listening to music. Musical Intelligence was incorporated twice into the curriculum. On day 6, students listen to the song "First Americans, and So Proud" by Barbara Speicher. After students listened to the song, they were asked to change the lyrics of the song to create two new songs about the Navajo and the Yurok Natives Americans. On day 11, the researcher had a similar musical intelligence activity. Students listen to Judy Leonard's song "Tsa-La-Gi." Then, students were asked to compose songs on the Haudenosaunnee and Cherokee by changing the lyrics for the song "Tsa-La-Gi".

Visual/Spatial Intelligence. Students with visual/spatial intelligence engage in behavior such as mental representations, coloring, and visuals. Visual/spatial intelligence was also incorporated twice into this MI intervention. On day 3 the visual/spatial intelligence focus was to have students make a drawing of a Navajo sand painting. The Navajo sand painting must contained drawings that describe the main goals of a sand painting which are to bring holy people closer to the natives, heal the ill, and other cultural goals. On day 9 students were asked to make a social studies drawing book that illustrated the Haudenosaunee location, customs, government system, and the creation of the tribe's constitution.

Bodily-Kinesthetic Intelligence. Bodily-Kinesthetic dominant students enjoy moving, creating things, and developing theatrical productions. This intelligence will be applied to the curriculum twice, and students will role play and/or make objects that represent the tribe. On day 5, the bodily-kinesthetic activity on the Yurok will have students making Yurok money called tooth-shell string and they will role-play. The tooth shell strings will be made out of yarn and pasta. After finishing their tooth-shell string, students will be put into groups to buy or

exchange items that were needed by the Yurok. Through role play and creating money, students will learn the Yurok's economic system. On day 10, the bodily-kinesthetic activity will have students role-playing the reasons the Haudenosannee established a government, the historical figures that influence the development of the government, and the creation of the Haudenosanee constitution.

Intrapersonal Intelligence. Students with high intrapersonal intelligence enjoy engaging in analysis and work by themselves. In this multiple intelligence curriculum, intrapersonal intelligence was used as supporting intelligence, meaning that it works in combination with another intelligence. For example, when students were instructed to make drawings on social studies scenarios, do cause-effect graphs, summaries, and musical lyrics, they are working by themselves.

Interpersonal Intelligence. Students with interpersonal intelligence like to socialize and are empathetic. Interpersonal intelligence was also used as a supporting intelligence. In this intervention, interpersonal intelligence assisted students when they participated in activities that involve other students such as role playing and reading as a group.

Linguistic Intelligence. Students with dominant linguistic intelligence enjoy speaking and writing. The activities in this intelligence included writing summaries, having class discussion, vocabulary flash cards and crossword puzzles. On day 2, students were given a linguistic intelligence activity on the Navajo. First, the researcher and the students read and discussed something interesting on the Navajo. Then students were asked to write a summary about what they learned about the Navajo and made flash cards on the vocabulary words. On day 7, as part of the linguistic activity students completed a crossword puzzle on the Cherokee.

Logical-Mathematical Intelligence. Students with dominant logical-mathematical intelligence like to analyze, resolve problems, and observe for associations. These students, for example, can develop logical-sequential graphs and charts of cause and effect in social studies. On day 4, students were instructed to create a logical-sequential graph on the way in which the Yurok change their environment. Additionally, students were also asked to review the lesson on the Yurok and graph events that have cause and effect. Similarly, on day eight, the MI activity on the Cherokee asked students to write the events that led to the trail of tears in a

logical-sequential graph. The Cherokee logical-mathematical intelligence activity had students looking and graphing events in terms of cause and effect.

CHAPTER THREE

RESULTS

No statistical tests were conducted to determine whether or not the MI curriculum was associated with an increase in social studies assessment scores because children typically could not answer any of the questions on the pretest correctly. Therefore, there was no variability in the pretest scores. Nonetheless, a consideration of the scores represented in Table 1 clearly suggests that significant learning of the specific chapter content took place across the course of the study.

In order to determine whether or not the curriculum led to changes in children's achievement goals, a series of three paired-samples t-tests was conducted-one test for each of the three goal measures. Results indicated that children's posttest mastery goal score (M = 4.76; SD = 0.28) was significantly higher than their pretest mastery goal score (M = 3.47; SD = 1.06), $t(10) = 4.601, p < .001$. In addition, children's posttest performance approach goal score (M = 3.44; SD = 0.94) was lower than their pretest performance approach goal score (M = 2.73; SD = 0.60), $t(10) = 2.51$, $p < .03$. Finally, we also see a significant decline in performance avoidance

scores from pretest (M = 3.50; SD = 0.60) to posttest (M = 2.32; SD = 0.63), $t(10) = 4.55$, $p < .001$. On the multiple intelligence survey, students identified the non-traditional activities as their most favorite and traditional MI activities in the curriculum as their least favorite. See Table 2 for frequencies. In addition, 9 out of 11 students found the chapter more interesting than previous social studies lessons, and they identified multiple, specific learning goals such as gaining more knowledge about the Native Americans diet, tribes life today, geographical location of all the tribes, tribes favorite colors, and whether Indigenous people built structures like dams.

Table 1. Participants Social Studies Assessment Scores

	Social Studies Assessment Schools	
Participants	Pretest	Post-test
1	0	67
2	0	75
3	0	92
4	0	92
5	0	33
6	0	50
7	0	92
8	0	100
9	0	100
10	0	92
11	0	92

Note. The difference among pretest and posttest social studies assessment scores demonstrated that students learn throughout the MI intervention.

Table 2. Frequencies on Most Liked and Least Liked Activities

Activities Mentions	Most Liked	Least Liked
Crossword Puzzle	1	0
Flash Cards and Paragraph	0	10
Navajo's Sand painting	7	1
Yurok's Money	3	0

Note. Only the frequencies of activities mentioned by the students as least liked or most liked were recorded in this table. The non-traditional MI activities such as the Navajo's sand painting and the Yurok's money were rated as the most favorite, whereas, traditional activities such as flash cards and paragraph writing were rated as least favorite.

CHAPTER FOUR

DISCUSSION

The present research project investigated whether a novel MI-based curriculum would be associated with improvement in third grade students' social studies assessment scores and with the adoption of a more mastery or learning-goal orientation. Students' social studies assessment scores and social studies achievement goals were assessed prior to and after implementing the MI curriculum. There were two specific hypotheses posited in the study: The first hypothesis stated that the MI curriculum would increase third grade students' posttest social studies assessment scores and that students would adopt or maintain a learning achievement goal orientation. The results confirmed the first hypothesis. With regards to the MI curriculum and social studies assessment scores, posttest scores were clearly higher than pretest scores, which uniformly indicated no familiarity with the subject matter of the lesson. No statistical test could be performed due to the lack of variability in the pretest scores. In terms of the MI curriculum and achievement goals orientation, the results confirm that students with learning goals maintained the same achievement

orientation, while students with performance approach and performance avoidance goals moved towards more of a learning goal orientation over the course of the study. The second hypothesis stated that third grade students would report the non-traditional activities as their most favorite, rate the current chapter as more interesting than previous chapters presented under a traditional curriculum plan, and describe distinct goals for learning more about Native Americans. The findings supported the second hypothesis. In conclusion, the present research project confirmed that the MI curriculum encourages the adaptation and maintenance of learning achievement goals, and supports the claim that children enjoy non-traditional activities, find a curriculum centered in MI-based activities more interesting and motivating, and are likely to want to follow up their classroom studies under such a curriculum with additional learning activities.

The results for whether MI increases third grade students' social studies assessment scores are, of course, difficult to interpret. No statistical test could be conducted. More importantly, there is no adequate control group with which to compare the apparent increase in knowledge. It cannot be determined whether or not the MI curriculum led to greater learning than a traditional

curriculum might have. But for the present study, the key is really the change in goal orientation. All that needs to be shown regarding social studies knowledge is that it increased substantially across the intervention period. This appears to have been the case. Had it not changed, then the observed change in goal orientation would be hard to interpret. Previous research studies suggest that an MI curriculum is a successful and effective learning strategy that helps improve grades across different academic domains such as media (Özdener & Özçoban, 2004), chemistry (Akkuzu & Akcay, 2011), science (Ozdilek, 2010; Ozdemir et al., 2000), reading (Al-Balhan, 2006), literacy skills (Brand, 2006), health (Liess & Ritchie, 1995), cognitive skills (Delgoshaeia & Delavaria, 2012), English as a second language (Stăncună & Crăciun, 2011), and the concept of time (Armstrong, 1994).

Of primary interest, the present findings indicate that regardless of students' prior achievement orientation, children adopted a learning goal approach in social studies following the intervention. Again, because this is a one group design with no control, there are alternative explanations for this result. However, there are fewer of these factors. Why would the goal orientations change in the direction that they did -

toward learning and away from a performance focus - except for the students' experiences with the curriculum. The results are consistent with Akkuzu and Akcay (2011) and Stăncună and Crăciun (2011). The implementation of MI to a chemistry class (Akkuzu & Akcay, 2011) and to an English as a second language class (Stăncună & Crăciun, 2011) also resulted in students developing a positive attitude towards the subject, continuously participating and becoming enthusiastic learners. Additionally, students found the MI curriculum extremely appealing (Armstrong, 1994; Arnold, 2007; Liess & Ritchie, 1995; Ozdemir et al, 2000; Stăncună & Crăciun, 2011) regardless of the degree of difficulty (Stăncună & Crăciun, 2011). Research has indicated that students with learning goals have a positive attitude toward education (Ablard, 2002; Linnenbrink, 2005), believe that knowledge is cumulative (Bong, 2009; Sungur & Senler, 2010), engage in learning the material (McNeil & Alibali, 2000), strive to successfully complete difficult classwork (Ablard; 2002), and use adequate educational working methods (Ablard, 2002; Bong, 2009; Linnenbrink, 2005; McNeil & Alibali, 2000). Similarly, Gardner (2011) applied MI to adults in school and observed that students became more accountable for their education and used effective learning

strategies. Additionally, MI also helped teachers maintain students' engagement in the school material regardless of students' educational background, favorite subject, literacy skills, or career and culture (Gardner, 2011). Meece and Miller (1999) advocated that educators develop lesson plans that are centered around the students so that students can acquire or continue to have a learning goal orientation. Therefore, from previous research and from this project, it could be concluded that the multiple intelligence curriculum tended to foster a mastery goal orientation in social studies, at least over the course of the curriculum. The students appeared to become enthusiastic learners who were interested in the material, eager to learn new material in social studies, and who enjoyed activities that made them think even if they were challenging.

Lastly, students found the non-traditional activities more enjoyable than traditional activities, viewed the chapter as interesting and wanted to learn more on the topic. This result is consistent with previous research studies. For example, Stăncună and Crăciun (2011) noted that students in their English as a second language class happily participated without difficulty when incorporating non-traditional activities such as visual-spatial,

musical, bodily-kinesthetic and intrapersonal tasks. Likewise, Ucak, Bag, and Usak (2006) applied the MI theory to a junior high school science class in which students reported that writing poems, making drawings, and creating musical pieces along with other activities was gratifying and engaged in the lesson plan. Liess and Ritchie (1995) observed that the MI health curriculum made students so interested in the topic that they insisted in putting braille signs to improve the mobility conditions for their peers with visual and hearing impairments. The fact that students are interested in learning more about the topic also implies that they are either developing or maintaining their learning achievement goals. For instance, Midgley et al. (2000) stated that students with learning goals perform educational endeavors to obtain more knowledge.

Throughout the MI intervention, the children expressed how enthusiastic they were about the non-traditional activities on social studies. For example, during the sand painting activity students worked quietly making sure that their drawings did represent the Navajo's cultural aspects. The sand painting drawings were full of details and creativity. For instance, some paintings had the Navajos thanking the animals for being their food,

whereas other drawings had Navajos living in the desert planting seeds and getting underground water. While performing the Yurok money activity, the children enjoyed buying items that this Native American tribe needs to survive. The children's pleasure in this activity was apparent because they wanted to make many tooth-shell strings and participated in role play purchasing the items they needed. At the end of the non-traditional activities students wanted to continue working on their sand painting, Yurok money or composing songs. Most often the students expressed that they wanted to perform more activities similar to the sand painting and Yurok money. After the class session, students continued to share and express what they found interesting and recall what they learned. Additionally, while children performed traditional activities such as flash cards and writing a paragraph, they expressed their dislike and boredom. Overall, the implementation of the MI intervention had many benefits such as increasing students' interest, creativity, knowledge, participation, and motivation to learn more on social studies.

As previously discussed, research studies on MI as applied to the school curriculum have generally found it to be an effective teaching strategy. Although the results

on the possible MI curriculum on third graders academic performance are inconclusive owing largely to the design of the study, the findings on MI curriculum and achievement goals have important implications in education. Multiple Intelligence, as applied to the school curriculum, helps students adopt a learning goal orientation. This finding is consistent with research studies that have indicated that MI increases students' engagement and motivation in school materials. Currently, reading and answering questions continue to dominate the classroom teaching strategy. The present findings suggest that, educators and paraeducators need to adapt more MI curriculum for the development of an appealing, exciting, motivating, learning-oriented environment. It is essential that teachers promote curriculum that enhances learning goals so that children do not view learning as boring, time consuming and dreadful.

The present research project had a few limitations. The first limitation was that the sample was small and only included third grade students. A larger sample size and a diverse sample of elementary students across all grades would have increased the generalizability of the study. The second limitation was that the project was a single group pretest-posttest design. Although the

researcher searched for other factors that could influence the results in the pretest and posttest, without a control group it is difficult to conclude whether other variables and not the intervention are operating during the research project. Lastly, the pretest and posttest was the same social studies assessment; therefore, the potential risk that students were already exposed to the questions might have also impacted the results even when the participants only saw it once and were not given the answers.

Research in the area of MI, school performance, and achievement goals continues to be scant. Future research should contain a vast sample size, observe students achievement goals in relationship to MI and should compare MI to traditional teaching strategies as well as recently developed teaching techniques. In addition, prospective research should also observe the long term effects of an MI-based curriculum on student's achievement goals. Another potential research project would include all nine intelligences and observe which intelligences positively impact students' achievement goals. In conclusion, the present research project provided evidence that MI was an effective school curriculum that assists students in developing a learning achievement goal. In addition, it made the chapter and activities fun and interesting, and

intrigued students to further their knowledge on the school subject. Therefore, it is essential that educators apply MI to school subjects to increase school motivation and for students to become active learners.

APPENDIX A

DEMOGRAPHIC QUESTIONNAIRE

Participant Number _____

Demographic Questionnaire

In order for the present research to be effective it is necessary to have the demographic information on the children participating. After giving consent to allow your son or daughter to be a part of the research study, please fill out the demographic questionnaire and return this sheet to the school along with the consent form. Nether your personal information nor your child's information will be publically display. In order words, the information provided will be kept confidential. The researcher will use a code which appears in the upper right hand corner of this sheet instead of a name for the research records.

1. **Student Sex:** ____ Male ____ Female

2. **Student Age:** _____

3. Please indicate your child's **ethnicity** below. Put a check next to the ethnic group to which your child belongs. (check one):
   ____ African American/Black
   ____ White/Caucasian/European American
   ____ Native American/American Indian
   ____ Multiethnic/Other ethnic background (Please indicate: _____)
   ____ Middle Eastern/Arab
   ____ Latino/Hispanic/Chicano
   ____ Asian American/Pacific Islander/Indian

4. What is the highest level of **education** that YOU completed?
   ___ Grade 5 or below.
   ___ Between grade 5 and 8.
   ___ Some high school but didn't finish.
   ___ Completed high school degree.
   ___ Some college.
   ___ Completed college degree.
   ___ Graduate degree.

5. What is the highest level of **education** that your SPOUSE completed?
   ___ Grade 5 or below.
   ___ Between grade 5 and 8.
   ___ Some high school but didn't finish.
   ___ Completed high school degree.
   ___ Some college.
   ___ Completed college degree.
   ___ Graduate degree.

Developed by Marilyn Garcia-Mata

APPENDIX B

SOCIAL STUDIES ACHIEVEMENT GOALS INVENTORY

Participant Number _____

Pre-test
Social Studies Achievement Goals Inventory

The following questions ask you to think about how you feel about schoolwork. We want you to tell us HOW MUCH YOU AGREE with each of the following statements:

not at all	**not very much**	**somewhat**	**pretty much**	**very much**
1	**2**	**3**	**4**	**5**

____ 1. I like to do SOCIAL STUDIES problems that I'll learn from. Even if I make a lot of mistakes.

____ 2. I would feel really good if I were the only one who could answer the teachers' questions during SOCIAL STUDIES.

____ 3. It's very important to me that I don't look stupid during the SOCIAL STUDIES lesson.

____ 4. An important reason why I do my work during SOCIAL STUDIES is because I like to learn new things.

____ 5. I want to do better than the other students in my class on my SOCIAL STUDIES homework.

____ 6. An important reason why I do my work during SOCIAL STUDIES is so that I don't embarrass myself.

____ 7. I like the SOCIAL STUDIES lesson and homework best when it really makes me think.

____ 8. It's important to me that the other students in my class think that I am good at SOCIAL STUDIES.

____ 9. The reason I do my work during SOCIAL STUDIES is so my teachers don't think I know less than others.

____ 10. An important reason why I do my work in SOCIAL STUDIES is because I want to get better at it.

____ 11. I would feel successful in school if I did better on my SOCIAL STUDIES assignments than most of the other students.

____ 12. One reason I would not raise my hand during the SOCIAL STUDIES lesson is to avoid looking stupid.

____ 13. I do my SOCIAL STUDIES homework because I am interested in it.

____ 14. I'd like to show my teachers that I'm smarter at SOCIAL STUDIES than the other students in my class.

____ 15. The reason I do my work in SOCIAL STUDIES is so others won't think I'm dumb.

____ 16. An important reason I do my SOCIAL STUDIES assignments is because I enjoy it.

____ 17. Doing better than other students on my SOCIAL STUDIES assignments is important to me.

____ 18. One of my main goals during SOCIAL STUDIES lessons is to avoid looking like I can't do my work.

Participant Number _____

Post-Test
Social Studies Achievement Goals Inventory

The following questions ask you to think about how you feel about schoolwork. We want you to tell us HOW MUCH YOU AGREE with each of the following statements:

not at all	**not very much**	**somewhat**	**pretty much**	**very much**
1	**2**	**3**	**4**	**5**

____ 1. I like to do SOCIAL STUDIES problems that I'll learn from. Even if I make a lot of mistakes.

____ 2. I would feel really good if I were the only one who could answer the teachers' questions during SOCIAL STUDIES.

____ 3. It's very important to me that I don't look stupid during the SOCIAL STUDIES lesson.

____ 4. An important reason why I do my work during SOCIAL STUDIES is because I like to learn new things.

____ 5. I want to do better than the other students in my class on my SOCIAL STUDIES homework.

____ 6. An important reason why I do my work during SOCIAL STUDIES is so that I don't embarrass myself.

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Adapted from

Midgley, C., Meahr, L. M., Hruda, Z. L., Anderman, E., Anderman, L., Freeman, E. K., Gheen, M., Kaplan, A., Kumar, R., Middleton, J. M., Nelson, J., Roeser, R., & Urdan, T. (2000). Manuel for the patterns of adaptive learning scales. Ann Arbor, Michigan: The University of Michigan.

APPENDIX C

ACADEMIC ASSESSMENT ON SOCIAL STUDIES

Participant Number _____

Pre-test Academic Assessment on Social Studies
Old and New Communities

A pre-test is a test that tells the teacher how much you know about a topic before teaching it to you. The following is a pre-test on Old and New Communities. How you do on the pre-test will not affect your social studies grade; however, try your hardest on every question. If you do not know the answer of a question, please take an educated guess.

Please write the best answer.

1. What does economy mean? Write a sentence using the word economy.

2. What is the purpose of the Navajo Sand Painting?

3. How did the Navajo Natives adapt to the desert?

4. What did the Yurok Native Americans use for money?

5. Which Native American group changed their environment by building a dam and clearing out bushes to survive?

6. Write a sentence using the word barter?

7. Why did the Cherokee have two homes?

8. Who created the Cherokee's written language?

9. What is the Trail of Tears?

10. What nations made the Haudenosaunee Government?

11. Who were the two people that help the Haudenosaunee form a government?

12. Identify and write if the letter of the sentence below is a cause or an effect.

    A. The Cherokee were forced to leave their land.

    B. The settlers wanted the Cherokee Land

    Cause _____ Effect _____

Participant Number _____

Post-test Academic Assessment Achievement on Social Studies
Old and New Communities

A post-test is a test that tells us how much you learn. The following is a post-test on Old and New Communities. Remember, try your hardest on every question.

Please write the best answer.

1. What does economy mean? Write a sentence using the word economy.

2. What is the purpose of the Navajo Sand Painting?

3. How did the Navajo Natives adapt to the desert?

4. What did the Yurok Native Americans use for money?

5. Which Native American group changed their environment by building a dam and clearing out bushes to survive?

6. Write a sentence using the word barter?

7. Why did the Cherokee have two homes?

8. Who created the Cherokee's written language?

9. What is the Trail of Tears?

10. What nations made the Haudenosaunee Government?

11. Who were the two people that help the Haudenosaunee form a government?

12. Identify and write if the letter of the sentence below is a cause or an effect.

    A. The Cherokee were forced to leave their land.

    B. The settlers wanted the Cherokee Land

    Cause _____ Effect _____

Developed by Marilyn Garcia-Mata

APPENDIX D

MULTIPLE INTELLIGENCE SURVEY

Participant Number_____

Multiple Intelligence Survey

What activity did you enjoy the most? And why?

_____
_____
_____
_____
_____

What activity did you like the least? And why?

_____
_____
_____
_____
_____

Now that you finish this chapter, what else would you like to know on the Native Americans?

_____
_____
_____
_____
_____

How interesting did you find this chapter compare to previews chapters? Circle your answer.

Less Interesting About the Same More Interesting

Please, explain why?

_____
_____
_____
_____
_____

Developed by Marilyn Garcia-Mata

APPENDIX E

MULTIPLE INTELLIGENCE CURRICULUM

Multiple Intelligence Curriculum

Focus Questions:	Who are the Navajo? Where do the Navajo live? What do Navajo Natives do to survive in the desert? What are the Navajo's religious beliefs, customs and traditions? Where do the Navajos live today? What do Navajo Natives do for a living today?
Purpose:	The purpose of the lesson plan is for students to learn the geographical location of the Navajo Natives in the past and today. Learn the ways the Navajo adapt to the desert. Also, students will learn the different careers that Navajo Native do today. Describe the Navajo's culture such as sand painting and giving thanks to the animals that they eat.
Objectives:	The students will learn: • The Navajo's religious beliefs, customs, traditions and culture. • The location of where the Navajo live in the past and today. • The Navajo Native's adaption to the desert. • The careers that Navajos have today.
Day 2:	
Main Intelligence:	Linguistic Intelligence (reading, class discussion, flash cards)
Supporting Intelligence:	Interpersonal Intelligence, Intrapersonal Intelligence and Visual-Spatial Intelligence.
Instructions:	All the students will read Chapter 3 lesson 1 with the researcher (Linguistic Intelligence and Interpersonal Intelligence). After reading the lesson, students will discuss as a class the Navajo's geographic location, adaption to the desert, religious beliefs, customs, traditions, culture and lifestyle today. In specific, each student will have to discuss with the class something they found interesting about the Navajo. Students will also be ask to write a summary about the Navajo's adaption to the desert, describe the Navajo's religious beliefs, customs, tradition, culture and Navajo's lifestyle today (Linguistic Intelligence). Lastly, students will be asked to create flash cards on the social studies vocabulary words. The flash cards and the summary will be done individually (Intrapersonal intelligence). The flash cards will contain the word, definition, a sentence, and a drawing illustrating the meaning of the word (linguistic and visual-spatial).
Duration:	30-40 minutes
Materials:	Houghton Mifflin History-School Science: Community Textbook Line Paper Pencil Flash Cards
Activity Assessment:	Rubric

4	The summary describes in detail the reading. The summary contains at least five sentences. The grammar and spelling must be correct. The flash cards contain sentences, words, definitions and an illustration. The sentences in the flash cards must make sense. The students spoke loud and clear during class discussion.
3	The summary has a few details, few spelling errors and grammar errors. The flash cards contain the word, sentence, definitions. However, the sentences in the flash cards did not make sense. Student's participated in class discussion.
2	The summary is missing a lot of details, there are lots of misspelling and many grammar errors. The student forgot to make flash cards for some words. The flash cards had grammar errors and misspellings. During the class discussion the student did not speak.
1	The summary was unrelated to the topic. Also, the summary did not have details and have many grammar errors. The flash cards were incomplete. The student did not present.

Standards:	"HSS 3.2.1 Describe national identities, religious beliefs, customs, and various folklore traditions. HSS 3.2.2 Discuss the ways in which physical geography, including climate, influenced how the local Indian nations adapted to their natural environment (e.g., how they obtained food, clothing, tools)"(Viola et al., 2007. p. 74).
Bibliography:	Viola, J. H., Bednarz, W. S., Cortes, E. C., Jennings, C., Schug, C. M., White, S. C. (2007). Houghton Mifflin history-social science: Communities Teacher's Edition. Houghton Mifflin: Sacramento, California

Focus Question:	Who makes the Navajo sand paintings? What colors are utilize to make the sand painting? What are the purposes of the making a sand paining?
Purpose:	The purpose of this activities is for students to obtain a deeper understand of the Navajos culture. Specially, the creation and the purposes of the sand painting.
Objective:	Third graders will learn: • The purposes of making a sand painting. • The colors that are used to make a sand painting. • Who makes the sand painting.
Day 3:	
Main Intelligence:	Visual-Spatial Intelligence (drawing aspects of the Navajo Culture and Environment)
Supporting Intelligence:	Linguistic intelligence, Intrapersonal intelligence and Interpersonal intelligence.
Instructions:	Students will read as a group Extend Lesson 1, the "Navajo Sand Painting" (linguistic and interpersonal intelligence). After reading this section, students will create a Sand Painting. The sand painting drawings will illustrate the cultural aspects, and the purposes of the sand paintings such as to bring holy people closer to the Navajo and cure the sick. (Visual-Spatial Intelligence) (Viola et al., 2007). Each student will make their own Sand Painting (Intrapersonal intelligence). The following are the directions for making a Sand Painting: 1. Students will be given a paper bag in order to resemble the texture of a Navajo Sand Painting. 2. The paper bag will be cut across one edge to create a bigger Sand Painting. 3. Students will be instructed to use the colors used by the medicine such as white, blue, yellow and black. 4. Lastly, students will draw the purposes of the Navajo Sand painting and cultural aspects.
Duration:	30-40 minutes
Materials:	Houghton Mifflin History-School Science: Community Textbook Paper Bag Colors (white, blue, yellow and black)
Activity Assessment:	Rubric
	4 — The sand painting drawings illustrate the Navajo's culture and the purposes of the Sand Painting. Students used the colors utilize by the Medicine man to create the sandpaper. The drawing must be detailed and creative.
	3 — Students made a sand painting but forgot to illustrate the purposes of the Navajo Sand Painting or Cultural aspects. The drawings contain a lot of details and creativity. Students use the appropriate color to create the sandpaper.
	2 — The sand painting is missing illustrations on the purposes of the Navajo's Sand Painting, and cultural aspects. There is little creativity and description in the drawing. The colors used in the sand paper are not the same colors used by the medicine man.
	1 — The sand painting illustrations are not related to the Navajo Culture. No details and creativity. The students did not use the correct colors in the sand paper.
Standards:	"HSS 3.2.1 Describe national identities, religious beliefs, customs, and various folklore traditions" (Viola et al., 2007. p. 74)."
Bibliography:	Viola, J. H., Bednarz, W. S., Cortes, E. C., Jennings, C., Schug, C. M., White, S. C. (2007). Houghton Mifflin history-social science: Communities Teacher's Edition. Houghton Mifflin: Sacramento, California

<table>
<tr><td>Focus Questions:</td><td>Where do the Yurok Natives live? What do Yurok Natives eat? How did the Yurok Natives modify the environment? How did the Yurok Natives buy food and other things they need?</td></tr>
<tr><td>Purpose:</td><td>The lesson seeks to teach students about the Yurok Natives. In detail, students will understand the Yurok's location, modification of natural resources, food and economical systems.</td></tr>
<tr><td>Objectives:</td><td>The learners will understand:
• The living environment of the Yurok Natives and how it impacted the Yurok's lifestyle.
• The Yurok's economical system.</td></tr>
<tr><td>Day 4:</td><td></td></tr>
<tr><td>Main Intelligence:</td><td>Logical-Mathematical Intelligence (graph the steps the Yurok's took to modify the environment)</td></tr>
<tr><td>Supporting Intelligence:</td><td>Linguistic Intelligence, Interpersonal Intelligence, Intrapersonal Intelligence and Visual-Spatial Intelligence.</td></tr>
<tr><td>Instructions:</td><td>All the students will participate in an in-class reading of Chapter 3 Lesson 2, "The Yurok" (Linguistic Intelligence and Interpersonal Intelligence). The researcher will review the lesson with the students (Interpersonal Intelligence). The Yurok Native American's were among the first people to alter the environment to get natural resources such as food. In specific, the Yurok created a dam to catch fish and cut trees to create open spaces (Viola et al., 2007). Students will be instructed to create a logical-sequential graph on the steps the Yurok's took to modify the environment (Logical-Mathematical). Each student will create their own logical-sequential graph (Intrapersonal), if students have enough time they will be given the opportunity to illustrate the steps that the Yurok took to build the dam and cut trees (Visual-Spatial Intelligence).</td></tr>
<tr><td>Duration:</td><td>40 minutes</td></tr>
<tr><td>Materials:</td><td>Houghton Mifflin History-School Science: Community Textbook
logical-Sequential Graph
Pencil
Colors</td></tr>
<tr><td>Activity Assessment:</td><td>Rubric<table>
<tr><td>4</td><td>Students will write down in a logical-sequential graph all the steps the Yurok took to modify the environment.</td></tr>
<tr><td>3</td><td>Students mention all the steps the Yurok took to modify the environment but failed to put them in order.</td></tr>
<tr><td>2</td><td>Students did not write down the entire steps and did not arrange the steps in order.</td></tr>
<tr><td>1</td><td>The logical-sequential graph is not related to the topic.</td></tr>
</table></td></tr>
<tr><td>Standards:</td><td>"HSS 3.1.2 Trace the ways in which people have used the resources of the local region and modified the physical environment (e.g., a dam constructed upstream changed a river or coastline). HSS 3.2 Students describe the American Indian nations in their local region long ago and in the recent past. HSS 3.2.2 Discuss the ways in which physical geography, including climate, influenced how the local Indian nations adapted to their natural environment (e.g., how they obtained food, clothing, tools). HSS 3.2.3 Describe the economy and systems of government, particularly those with tribal constitutions, and their relationships to federal and state governments" (Viola et al., 2007, p. 83).</td></tr>
<tr><td>Bibliography:</td><td>Viola, J. H., Bednarz, W. S., Cortes, E. C., Jennings, C., Schug, C. M., White, S. C. (2007). Houghton Mifflin history-social science: Communities Teacher's Edition. Houghton Mifflin: Sacramento, California.</td></tr>
</table>

<table>
<tr><td>Focus Questions:</td><td>What did the Yurok used as money? What was essential for the Yurok's survival? What is mean by "barter"?</td></tr>
<tr><td>Purpose:</td><td>This lesson seek to provide students with a deeper understanding about the Yurok's economical system.</td></tr>
<tr><td>Objectives:</td><td>Students will have a deeper understand of:
• The Yurok's monetary system.
• Value goods to the Yurok.</td></tr>
<tr><td>Day 5:</td><td></td></tr>
<tr><td>Main Intelligence:</td><td>Bodily-Kinesthetic intelligence (create Yurok Money and classroom theater)</td></tr>
<tr><td>Supporting Intelligence:</td><td>Linguistic Intelligence, Logical-Mathematical intelligence, Intrapersonal intelligence and Interpersonal intelligence</td></tr>
<tr><td>Instructions:</td><td>Extend Lesson 2 "Yurok Money" will be read aloud by the researcher and students (Interpersonal Intelligence). This section provides a deeper understanding of the Yurok's monetary system. Students will learn that the Yurok used tooth-shell string as money or they would barter for essential items (Viola et al., 2007).
After the reading, students will be given the following instructions. Students will be asked to create tooth-shell string (Bodily-Kinesthetic). The tooth-shell string will be created with yarn and pasta in order to look like real tooth-shell strings. Once the tooth-shell strings are completed students will role-play to be Yurok natives, who are buying or bartering items (Bodily-Kinesthetic). Students will be put into groups of 3 or 4 in order to resemble a Yurok family. The researcher will have photos of items that the Yurok people would buy or barter such as canoes, deerskin, houses, fish, nets and spears. For example, students will role-play to buy canoes with the tooth-shell or barter deerskin for fish. Before role-play, students will put prices to the items that the Yurok need to survive. After purchasing items students will be asked to indicate how much money they had left since their purchase (Logical-Mathematical).
The purpose of this activity is to have students learn through role-playing that the Yurok use to barter or buy items. Through this activity students will also learn about items that the Yurok found to be essential for their survival. This activity is suggested in the social studies textbook; however, the teacher has never incorporated it to the lesson plan.</td></tr>
<tr><td>Duration:</td><td>40 minutes</td></tr>
<tr><td>Materials:</td><td>Houghton Mifflin History-School Science: Community Textbook
Yarn
Pasta
Pictures of Canoes, Deerskin, Houses, Fish, Nets and Spears.</td></tr>
<tr><td>Activity Assessment:</td><td>Rubric<table>
<tr><td>4</td><td>Through role-play students learned the difference between barter or buying items that the Yurok natives needed for survival. Students create Yurok's monetary notes which are the tooth shell strings. Students understand the importance of canoes, deerskin, blankets, houses, fish, nets and spears to the Yurok people.</td></tr>
<tr><td>3</td><td>The role-play activity help student understand the Yurok's monetary systems. Student display an understanding of the items that are need for Yurok survival. At times, the student did not want to participate there group members.</td></tr>
<tr><td>2</td><td>The student did not want to role-play but communicated that they understand the concepts through the visual communication with researcher or teacher.</td></tr>
<tr><td>1</td><td>Students did not want to role-play and did not show any understanding on the topic.</td></tr>
</table></td></tr>
<tr><td>Standards:</td><td>"HSS 3.2.2 Discuss the ways in which physical geography, including climate, influenced how the local Indian nations adapted to their natural environment (e.g., how they obtained food, clothing, tools). HSS 3.2.3 Describe the economy and systems of government, particularly those with tribal constitutions, and their relationships to federal and state governments" (Viola et al., 2007, p. 83).</td></tr>
<tr><td>Bibliography:</td><td>Viola, J. H., Bednarz, W. S., Cortes, E. C., Jennings, C., Schug, C. M., White, S. C. (2007). Houghton Mifflin history-social science: Communities Teacher's Edition. Houghton Mifflin: Sacramento, California.</td></tr>
</table>

<table>
<tr><td>Focus Questions:</td><td>What are the Navajos and Yuroks geographical location, foods, traditions and unique aspects?</td></tr>
<tr><td>Purpose:</td><td>The purpose of this lesson is to evaluate students understanding on the Navajo and the Yurok by having students composing songs on the natives.</td></tr>
<tr><td>Objectives:</td><td>Students understanding on the following will be observe:
• Navajos and Yuroks geographical location
• Navajos and Yuroks foods
• Navajos and Yuroks traditions
• Navajos and Yuroks unique aspects</td></tr>
<tr><td>Day 6:</td><td></td></tr>
<tr><td>Main Intelligence:</td><td>Musical Intelligence (listen to song and make a song)</td></tr>
<tr><td>Supporting Intelligence:</td><td>Intrapersonal intelligence.</td></tr>
<tr><td>Instructions:</td><td>The students will listen to the song "First Americans, and So Proud" by Barbara Speicher. This song describes where is the geographical location of many Native American tribes. Students will be asked to use this song to make their own song on the Yurok and the Navajo Native Americans. Students will be instructed to include the Native American's culture, geography location, food, traditions and unique aspects such as the Yuroks money and Navajo Sand Printing.</td></tr>
<tr><td>Duration:</td><td>40 minutes</td></tr>
<tr><td>Materials:</td><td>"First Americans, and So Proud" song written by Barbara Speicher.
Pencil
Paper</td></tr>
<tr><td>Activity Assessment:</td><td>Rubric<table>
<tr><td>4</td><td>The student was able to change the lyrics on Barbara Speicher, "First American, and So Proud," to make their own song on the Yurok and the Navajo. The song was creative, had rhyme and it demonstrated the information was learned on these two Native American Tribes.</td></tr>
<tr><td>3</td><td>The students changed the lyrics on Barbara Speicher, "First American, and So Proud" but did not include some aspects of the two Native American Tribes that were previously studied. The song was creative and had rhymed.</td></tr>
<tr><td>2</td><td>Student modified the song, however, the song had missing and incorrect information on the Navajo and the Yurok. The song was not creativity and lacked rhyme.</td></tr>
<tr><td>1</td><td>The students did not create their own song on the Native American nor listen to Barbara Speicher song.</td></tr>
</table></td></tr>
<tr><td>Standards:</td><td>"HSS 3.2.1 Describe national identities, religious beliefs, customs, and various folklore traditions. HSS 3.2.2 Discuss the ways in which physical geography, including climate, influenced how the local Indian nations adapted to their natural environment (e.g., how they obtained food, clothing, tools)" (Viola et al., 2007. p. 74).

"HSS 3.2.3 Describe the economy and systems of government, particularly those with tribal constitutions, and their relationships to federal and state governments" (Viola et al., 2007, p. 83).</td></tr>
<tr><td>Bibliography:</td><td>Speicher, B. (2011). First Americans & So Proud. Learning American History by Song [CD]. USA; Love & Laughter Music

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</table>

<table>
<tr><td>Focus Questions:</td><td>Where do the Cherokee live? What did the Cherokee used to eat? Why did the Cherokee have two homes? Who developed the Cherokee's written language? And Why? Why did the Cherokee have conflicts with Europeans? What is the Trail of Tears?</td></tr>
<tr><td>Purpose:</td><td>The lesson seeks to teach students about the Cherokee Native Americans. In detail, students will learn that the Cherokee had two homes because depending on the climate they would decide to stay in their summer home or leave to their winter home. The geographical location of the Cherokee Natives. The Cherokee written language created by chief Sequoyah. Finally, students will learn the events that lead to the trail of tears.</td></tr>
<tr><td>Objectives:</td><td>Students will learn:
• The geographical location of the Cherokee.
• The Cherokee's traditions and culture.
• Chief Sequoyah created the Cherokee's written language.
• The Cherokee's conflicts with the settlers and that led to the trail of tears.</td></tr>
<tr><td>Day 7:</td><td></td></tr>
<tr><td>Main Intelligence:</td><td>Linguistic Intelligence (Crossword Puzzle)</td></tr>
<tr><td>Supporting Intelligence:</td><td>Intrapersonal intelligence and Interpersonal intelligence.</td></tr>
<tr><td>Instructions:</td><td>Chapter 3 lesson 3, "The Cherokee", will be read aloud by students and the researcher (interpersonal intelligence). Students will be ask to complete a crossword puzzle on the Cherokee. The Cherokee Cross Word Puzzle includes information that students learn from the class reading. Students will be able to utilize the social-studies textbook. The crossword puzzle has 14 words and hints. The crossword puzzle will be done individually (intrapersonal intelligence).</td></tr>
<tr><td>Duration:</td><td>30-40 minutes</td></tr>
<tr><td>Materials:</td><td>Houghton Mifflin History-School Science: Community Textbook
Pencil Crossword Puzzle</td></tr>
<tr><td>Activity Assessment:</td><td>Rubric<table><tr><td>4</td><td>The student complete the crossword puzzle.</td></tr><tr><td>3</td><td>The student had a few errors on the crossword puzzles.</td></tr><tr><td>2</td><td>the student had many errors and did not complete the crossword puzzle.</td></tr><tr><td>1</td><td>The students did not turn in or did not complete the crossword puzzle.</td></tr></table></td></tr>
<tr><td>Standards:</td><td>"HSS 3.1.2 Trace the ways in which people have used the resources of the local region and modified the physical environment (e.g., a dam constructed upstream changed a river or coastline). HSS 3.2.2 Discuss the ways in which physical geography, including climate, influenced how the local Indian nations adapted to their natural environment (e.g., how they obtained food, clothing, tools). HSS 3.2.4 Discuss the interaction of new settlers with the already established Indians of the region" (Viola et al., 2007, p. 88).</td></tr>
<tr><td>Bibliography:</td><td>Viola, J. H., Bednarz, W. S., Cortes, E. C., Jennings, C., Schug, C. M., White, S. C. (2007). Houghton Mifflin history-social science: Communities Teacher's Edition. Houghton Mifflin: Sacramento, California.</td></tr>
</table>

<table>
<tr><td>Focus Questions:</td><td>What does "cause" mean? What does "effect" mean? What are some "causes" and "effects" of historical events that occur to the Cherokee?</td></tr>
<tr><td>Purpose:</td><td>The purpose of this lesson for students to learn the difference between cause(s) and effect. Students will also make a logical-sequential graph, and cause and effect graphs of historical events on the Cherokee.</td></tr>
<tr><td>Objective:</td><td>Third grade students will learn:
• How to recognize causes and effect of events.</td></tr>
<tr><td>Day 8:</td><td></td></tr>
<tr><td>Main Intelligence:</td><td>Logical-Mathematical Intelligence (Cause and Effect Graph and Logical-Sequential graph)</td></tr>
<tr><td>Supporting Intelligence:</td><td>Intrapersonal intelligence and Interpersonal intelligence</td></tr>
<tr><td>Instructions:</td><td>Students and researcher will review "The Cherokee" (interpersonal intelligence). In addition, the students and researcher will read together the Skillbuilder on Identify Cause and Effect. After lecturing on the cause and effect, students will be asked to make a logical-sequential graph on the trail of tears (Logical-Mathematical). Students will also be instructed to look back to "The Cherokee" in order to create cause and effect graphs on events that happened to these Native American.</td></tr>
<tr><td>Duration:</td><td>30-40 minutes</td></tr>
<tr><td>Materials:</td><td>Houghton Mifflin History-School Science: Community Textbook
Cause and Effect Graph, and Logical-Sequential Graph
Pencil</td></tr>
<tr><td>Activity Assessment:</td><td>Rubric
<table>
<tr><td>4</td><td>Logical Sequential:
For the logical-sequential graph, students must have written down all the events in order. Students must have also included details on the trail of tears.
Cause and Effect:
In the cause and effect graph students must have predicted correct the cause and effects.</td></tr>
<tr><td>3</td><td>In the logical-sequential graph, students did not place events in order. Although the events were not placed in order the graph did have detail.
Cause and Effect:
Students got confused with the cause and effects of historical events.</td></tr>
<tr><td>2</td><td>For the both types of graphs students omitted causes and forgot to put causes in order.</td></tr>
<tr><td>1</td><td>The Logical-Sequential and Cause and Effect graphs students wrote were unrelated to events on the topic.</td></tr>
</table></td></tr>
<tr><td>Standard:</td><td>"California Analysis Skill Historical Interpretation 3 Students identify and interpret the multiple causes and effects of historical events" (Viola et al., 2007).</td></tr>
<tr><td>Bibliography:</td><td>Viola, J. H., Bednarz, W. S., Cortes, E. C., Jennings, C., Schug, C. M., White, S. C. (2007). Houghton Mifflin history-social science: Communities Teacher's Edition. Houghton Mifflin: Sacramento, California.</td></tr>
</table>

<table>
<tr><td>Focus Questions:</td><td>Who are the Haudenosaunee? Where do the Haudenosaunee Native Americans live? Did the Haudenosaunee have a government system? And Why? Why did the Haudenosaunee have an oral Constitution?</td></tr>
<tr><td>Purpose:</td><td>The goal of this lesson is to have students learn about the existence of the Haudenosaunee Tribe. In particular, the geographical location, living arrangements, government systems and the oral constitution of the Haudenosaunnee tribe.</td></tr>
<tr><td>Objectives:</td><td>Students will achieve conceptual understanding on:
• The Haudenosaunee Tribe government systems and their constitution.
• The Natives living location and customs.</td></tr>
<tr><td>Day 9:</td><td></td></tr>
<tr><td>Main Intelligence:</td><td>Visual-Spatial Intelligence (draw a history book on the Haudenosaunee)</td></tr>
<tr><td>Supporting Intelligence:</td><td>Linguistic, interpersonal, and intrapersonal intelligence.</td></tr>
<tr><td>Instructions:</td><td>First the researcher and students will read Chapter 3 Lesson 4, "Haudenosaunee" in the Houghton Mifflin History-School Science: Community Textbook (linguistic and interpersonal intelligences). After reading Chapter 3 lesson 4, students will be given a Visual Spatial activity. Students will be asked to pretend they are book illustrators. As a book illustrator they must create drawings and captions to retell the Haudenosaunee geographical location, customs, government system and the creation of the tribe's constitution.</td></tr>
<tr><td>Duration:</td><td>30-40 minutes</td></tr>
<tr><td>Materials:</td><td>Houghton Mifflin History-School Science: Community Textbook
Pencil
Paper
Colors
Yarn
Construction Paper</td></tr>
<tr><td>Activity Assessment:</td><td>Rubric
<table>
<tr><td>4</td><td>The captions and drawings illustrated students understanding on the Haudenosaunee. The drawings are creative. Students included the tribe's home location, customs, government system and the creation of the constitution.</td></tr>
<tr><td>3</td><td>The captions and drawing were not detailed, however, did represent the tribe's location, customs, government system and constitution.</td></tr>
<tr><td>2</td><td>Students drawing and captions were not creative and detailed. In addition, students forgot to mention one aspect of the Haudenosaunee. For example, the student forgot to mention the tribe's customs.</td></tr>
<tr><td>1</td><td>The captions and the drawing were unrelated to the Haudenosaunee.</td></tr>
</table></td></tr>
<tr><td>Standards:</td><td>"HSS 3.2.2 Discuss the ways in which physical geography, including climate, influenced how the local Indian nations adapted to their natural environment (e.g., how they obtained food, clothing, tools).
HSS 3.2.3 Describe the economy and systems of government, particularly those with tribal constitutions, and their relationships to federal and state governments "(Viola et al., 2007, p. 88).</td></tr>
<tr><td>Bibliography:</td><td>Viola, J. H., Bednarz, W. S., Cortes, E. C., Jennings, C., Schug, C. M., White, S. C. (2007). Houghton Mifflin history-social science: Communities Teacher's Edition. Houghton Mifflin: Sacramento, California.</td></tr>
</table>

Focus Questions:	Who many nations made up the Haudenosaunee? Why were the nations fighting? Who stop the fighting among the the nations? Who make the Haudemosaunee Constitution?
Purpose:	The purpose of this lesson is to have students learn the events that cause fighting among the Haudenosaunee nations, the historical figures, and the natives constitution.
Objectives:	Students will obtain a deeper understanding of: • The reasons why the Haudenosaunee fight among each other. • The people involved in making peace among the Haudenosaunee. • The creation of the Haudenosaunee constitution.
Day 10:	
Main Intelligence:	Bodily-Kinesthetic Intelligence (Theatrical play on the Haudenosaunee government)
Supporting Intelligence:	Linguistic and Interpersonal intelligence
Instructions:	First, the students and researcher will orally review the lesson on the "Haudenosaunee" (Linguistic and Interpersonal). Specially, students will review the creation of the Haudenosaunee government and constitution. After reviewing this information students will be instructed to role play the events to lead to the Haudenosanee government, and the individuals responsible for the Haudenosanee constitution (Bodily-Kinesthetic). The purpose of this activity is to have student learn and understand the events that led to the creation of government, the people responsible for creating a government and a constitution (peacemaker and Hiawatha). This activity will be a group activity. The researcher will assist the students in planning the social-studies play. However, the students will be responsible for the playwright, making arrangements on how to role-play and incorporating characters to the play. Students will be instructed that the play must include the following: • The fighting between the five nations that made the Haudenosaunee Tribe. • Students will also be instructed not to act violently or say offensive words during the fight among the five nations. Students will only say why the five nations were fighting. • Reasons for the conflicts among the Haudenosaunee and how the conflicts were resolved. • The peacemaker and Hiawatha (a leader) who are responsible for the creation of the government and constitution.
Duration:	40 minutes
Materials:	Houghton Mifflin History-School Science: Community Textbook
Activity Assessment:	Rubric 4 — Students included the events that lead to the conflict between the five nations, the people responsible for the creation of the government and constitution, and the resolution of the conflicts. The creativity in role-play and participation throughout the activity. 3 — Students included all the events and people that play a role in the creation of the government system and constitution. The student lacks creativity and participation during the activity. 2 — The students did not include all of the events that lead to the creation of the government system and constitution. There was no creativity and participation in the role-play. 1 — The role-play was not related to the topic.
Standards:	"HSS 3.2.3 Describe the economy and systems of government, particularly those with tribal constitutions, and their relationships to federal and state governments. 3.4.5 Describe the ways in which California, the other states and sovereign American Indian tribes contribute to the making of our nation and participate in the federal system of government" (Viola et al., 2007, p. 96).
Bibliography:	Viola, J. H., Bednarz, W. S., Cortes, E. C., Jennings, C., Schug, C. M., White, S. C. (2007). Houghton Mifflin history-social science: Communities Teacher's Edition. Houghton Mifflin: Sacramento, California.

<table>
<tr><td>Focus Questions:</td><td>What are the Haudenosaunee and the Cherokee geographical location, traditions and unique aspects?</td></tr>
<tr><td>Purpose:</td><td>The purpose of the third grade lesson plan is to examine the students understanding on the Haudenosaunee and the Cherokee.</td></tr>
<tr><td>Objectives:</td><td>Students understanding on the following will be examine:
• The Cherokee and Haudenosaunee geographical location.
• The Cherokee and Haudenosaunee foods.
• The Cherokee and Haudenosaunee traditions and culture.</td></tr>
<tr><td>Day 11:</td><td></td></tr>
<tr><td>Main Intelligence:</td><td>Musical Intelligence (listen to a song while working or making their own song)</td></tr>
<tr><td>Supporting Intelligence:</td><td>Intrapersonal Intelligence</td></tr>
<tr><td>Instructions:</td><td>In this class session students will write songs about what they have learned in the previous days about the Cherokee and the Haudenosaunee (Day 6-9). The students will also listen to a song named "Tsa-La-Gi" by Judy Leonard. The song is about Sequoyah and the Cherokee language. The students can utilize this song to create different songs on these two native American tribes, or can create their own songs. The third grade students will be asked to incorporate to the songs the following: the tribes' culture, location, traditions and unique aspects such as the trial of tears and Haudenosaunee constitution.</td></tr>
<tr><td>Duration:</td><td>30-40 minutes</td></tr>
<tr><td>Materials:</td><td>"Tsa-La-Gi" Song by Judy Leonard.
Paper
Pencil</td></tr>
<tr><td>Activity Assessment:</td><td>Rubric<table>
<tr><td>4</td><td>The student created their own songs on the Native Americans or modified the song "Tsa-La-Gi" by Judy Leonard to make two new songs on the two tribes being learned. The Native American songs were creative, had rhyme and the correct information on these two Native American Tribes.</td></tr>
<tr><td>3</td><td>The Native American songs included the correct information on the tribes. The songs are creative but lack rhyme.</td></tr>
<tr><td>2</td><td>The student created his/her own songs on the Native Americans or modified the song "Tsa-La-Gi" by Judy Leonard to generate two songs on tribes. The Native American songs are not creative, do not have rhyme and have incorrect information on these two tribes.</td></tr>
<tr><td>1</td><td>The student's songs are unrelated to two Native American Tribes.</td></tr>
</table></td></tr>
<tr><td>Standards:</td><td>"HSS 3.1.2 Trace the ways in which people have used the resources of the local region and modified the physical environment (e.g., a dam constructed upstream changed a river or coastline). HSS 3.2.2 Discuss the ways in which physical geography, including climate, influenced how the local Indian nations adapted to their natural environment (e.g., how they obtained food, clothing, tools). HSS 3.2.3 Describe the economy and systems of government, particularly those with tribal constitutions, and their relationships to federal and state governments "(Viola et al., 2007, p. 96). "HSS 3.2.4 Discuss the interaction of the new settlers with the already established Indians of the region. HSSS 3.3 Students draw from historical and community resources to organize the sequence of local historical events and describe how each period of settlement left its mark on the land" (Viola et al., 2007, p. 88). "HSS 3.2.4 Discuss the interaction of the new settlers with the already established Indians of the region. HSSS 3.3 Students draw from historical and community resources to organize the sequence of local historical events and describe how each period of settlement left its mark on the land" (Viola et al., 2007, p. 88).</td></tr>
<tr><td>Bibliography:</td><td>Viola, J. H., Bednarz, W. S., Cortes, E. C., Jennings, C., Schug, C. M., White, S. C. (2007). Houghton Mifflin history-social science: Communities Teacher's Edition. Houghton Mifflin: Sacramento, California.
Leonard, J. (1995). Tsa-la-gi (Cherokee). Places and Faces of America [CD]. USA; Thomas Tunes Music and Heartstrong Music.</td></tr>
</table>

APPENDIX F

INSTITUTIONAL REVIEW BOARD

Human Subjects Review Board
Department of Psychology
California State University, San Bernardino

PI: Garcia-Mata, Marilyn and Ricco, Robert

From: John P. Clapper

Project Title: An Application of the Theory of Multiple Intelligence to Improve Academic Performance and Achievement Goals in the Early School Years

Project ID: H-12FA-19

Date: 11/25/12

Disposition: Administrative Review

Your IRB proposal is approved. This approval is valid until 11/25/2013.

Good luck with your research!

John P. Clapper, Co-Chair
Psychology IRB Sub-Committee

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