Learner-Centered Instruction and the Theory of Multiple Intelligences With Second Language Learners

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In an effort to understand learner-centered instruction from the perspective of multiple intelligences (MI), the purpose of this second teacher action research study was to further investigate the use of MI theory in shaping and informing instructional strategies, curricula development, and alternative forms of assessment with second language learners. My premise was that given what we know about the educational needs of second language learners, all teachers must be better equipped to widen their pedagogical repertoire to accommodate linguistically, culturally, and cognitively diverse students. Results of the study indicated that students did achieve greater success rates when the MI theory was implemented.

During the 2001–2002 school year, 23 foreign language and English as a Second Language (ESL) teachers and 650 students from eight states and three countries participated in an action research study to determine the impact of implementing the theory of multiple intelligences (MI) in daily classroom activities. MI theory, first introduced by Howard Gardner (1983), introduces the concept that there is no general intelligence, but rather that each person has at least eight distinct intelligences, which can be developed throughout his or her lifetime.

According to Gardner's theory, there are eight intelligences: bodily/kinesthetic, interpersonal/social, intrapersonal/introspective, logical/mathematical, musical/rhythmic, naturalist, verbal/linguistic, and visual/spatial (see definitions in Appendix A). Every learner has the capacity to exhibit all of these intelligences, but some are more highly developed than others in certain individuals. Based on MI theory, the challenge in education is for teachers to create learning environments that foster the development of all eight intelligences. Balanced instructional presentations that encourage addressing the multiple intelligences benefit all learners and expose students to the appropriate means through by which they can strengthen their underutilized intelligences.

Teachers College Record Volume 106, Number 1, January 2004, pp. 163–180

0161-4681

This study was designed to apply MI theory to foreign and second language learners in grades K–12. MI theory suggests that there is a plurality of intellect. From birth, individuals may differ in particular intelligence profiles, that is to say, "all human intelligences are a function of genes and environment interacting in different ways and in different proportions for each group and for each individual" (Kagan & Kagan, 1998).

The study began with an attempt to identify general characteristics of each student's intelligence profile with an informal MI survey. This survey (Appendix C) was adapted from Armstrong's book *Seven Kinds of Smart* (1993). The purpose of administering the survey was to raise student and teacher awareness of multiple intelligences. For most students, this experience was an introduction to the theory, as well as an opportunity to learn more about their own ways of learning. For teachers, survey results provided valuable information about individual students' strengths and weaknesses. This information was then useful in providing critical reference points for instructional planning. In developing instructional strategies and assessments, teachers made efforts to include all the multiple intelligences in their daily and/or weekly plans.

The researcher and participating teachers agreed that the plan for the MI study was to create and disseminate a collection of instructional strategies and alternative forms of assessment that accommodated the eight intelligences. Teachers shared experiences and strategies with each other, with the intent of enriching classroom instruction at all level and grade of language instruction. Teachers developed lesson plans and alternative assessments using a variety of planning tools, including background materials provided by the researcher. The MI study Web site (http://www.gse.gmu.edu/research/mirs) was an additional resource. The Web site was maintained throughout the research project to enhance collaboration among study participants and to increase the potential for outside educators to learn about the project and communicate with the researcher. The site is still up and is updated quarterly. It receives numerous visits daily.

Information obtained from informal interviews and student and teacher comments indicated that the way information is presented and the choice of instructional strategies can and do affect student learning, student attitudes, and the learning environment. Teachers noted that these alternative methods of instruction had a positive impact on the achievement of some students in the study.

Of primary interest in this study was examining the effects of the interventions (i.e., use of MI instructional strategies and assessment). The researcher reviewed qualitative and quantitative data collected during the research study. Teachers' electronic communications with the researcher, weekly activity logs with detailed notes, lesson plans, project descriptions,

student exit slips (three or four short answer questions answered by students at the end of randomly selected classes to determine their reactions to MI instructional strategies and assessment), and participants' comments at the end of the study. Student performance and achievement were determined by data that consisted of student grades before and after the MI study, as recorded by participating teachers.

REVIEW OF LITERATURE AND MI THEORY

Literature on multiple intelligences provides a sound theoretical foundation for an integrated, multidimensional style of education across learning styles and cultures. The review of the literature points out the paucity of research in practical applications of MI theory in foreign and second language classrooms. Gardner's seminal work on this subject, *Frames of Mind* (1983), devotes over 300 pages to explaining and differentiating what were then conceived as six intelligences, but only two chapters, or 60 pages, are concerned with the implications and applications of MI theory in education.

One defense of Gardner's theory is presented in the article "Where Do the Learning Theories Overlap?" (Guild, 1997). The author compares the key features and principles of three learning theories: multiple intelligences, learning styles, and brain-based education. He concludes that these theories intersect significantly, particularly in terms of their intended results. One point in common is that these theories are learner centered. Another similarity is the teacher's role as reflective practitioner and facilitator, with the student acting as a reflective partner. An additional mutual theme these theories have is the concern for the education of the whole person. All three theories emphasize curricula with depth and breadth. Additionally, MI theory, learning styles, and brain-based education promote diversity and inclusiveness, rather than the lowest common denominator approach to teaching. These three approaches focus on how students learn differently, acknowledging, "The more diverse learning experiences we provide our students, the more robust their education will be, the more ways they will learn each topic, hence the more they are prepared to succeed in a world marked by increasing diversity and an accelerating change rate" (Kagan & Kagan, 1998).

Since Gardner's announcement of his theory of multiple intelligences, books, professional papers, and journal articles have been published to fill the perceived gap in field research related to classroom lesson planning based on the theory as it relates to language learning. One example, *Multiple Intelligences: Multiple Ways to Help Students Learn Foreign Languages* (Gahala & Lange, 1997), notes, "Teaching with multiple intelligences is a way of taking differences among students seriously, sharing that knowledge

with students and parents, guiding students in taking responsibility for their own learning, and presenting worthwhile materials that maximize learning and understanding."

A second example is *Teaching and Learning Languages Through Multiple Intelligences* (Christison, 1996). MI theory offers ESL/EFL teachers a way to examine their best teaching techniques and strategies in light of human differences. There are two important steps to follow in understanding how MI theory applies to TESL/TEFL. The first step is to identify activities that we frequently use in our classes and categorize them. The next step is to track what we are doing in our with multiple intelligences:

1. *Awaken the intelligence*. Llesson begins with a riddle or brainteaser. The teacher divides students in groups and gives each one a series of riddles. The students then work collaboratively to solve the riddles.

2. *Amplify the intelligence*. Practice with the awakened intelligence and it will improve. Students practice describing commonly known objects.

3. *Teach for/with the intelligence*. Students describe objects in a large-group discussion.

4. *Transfer the intelligence*. Help students reflect on their learning in the previous stages and help them make the lesson content relevant to their lives outside the classroom.

A third example is the pilot study conducted by the author (Hall Haley, 2001). The purpose of the study was to identify, document, and promote effective real-world applications of MI theory in foreign and second language classrooms. Results indicated that teachers were profoundly affected by these approaches: They felt that their teaching experienced a shift in paradigm to a more learner-centered classroom; they were once again energized and enthusiastic about their pedagogy, and they felt they were able to reach more students. Students demonstrated keen interest in MI concepts and showed positive responses to the increased variety of instructional strategies used in their foreign language/ESL classrooms.

Providing opportunities for students to learn in ways in which they are most receptive maximizes their potential for success in the academic setting and in real life (Armstrong, 1994; Beckman, 1998). Integrating multiple intelligences into the classroom setting does not require a major overhaul of teaching methodology or a total revamping of adopted curricula. In general, supplementing and revising existing lesson plans with creative and innovative ideas suffice (Campbell, 1997). Thematic and interdisciplinary units that provide cooperative learning and that include a variety of tasks accomplished through a choice of activities allow for multiple intelligences to be well represented within the context of instruction. Both Glasgow

(1996) and Glasgow and Bush (1996) emphasize classroom use and real-world applications of such lessons. Relating the eight intelligences to future career choices is especially valuable.

THE PRESENT ACTION RESEARCH STUDY

RESEARCH QUESTIONS

Phase II of the MI study addressed these research questions:

1. How do teachers understand and use the MI survey to inform instructional strategies and alternative forms of assessment?
2. In what ways do teachers apply the MI theory in foreign and second language classrooms?
3. From the teachers' perspective, how effective was the application of MI strategies in foreign and second language instruction?
4. How can the MI theory shape and inform foreign and second language learning?

In light of the four research questions, number (1) framed teachers' participation in the study. Teachers were encouraged to share and discuss the results of the MI survey (pre- and poststudy) with both students and parents. The inclusion of all eight intelligences as well as answers to research question number (2) were repeatedly demonstrated in daily MI logs (grids used by teachers to chart MI interventions), weekly journals, and an MI activities bank which was created and posted on the study website. Answers to research question number (3) were reflected in teachers' satisfaction with the creation and implementation of more learner-centered activities. This in turn enhanced thematic or interdisciplinary units that were group-based and provided a choice of tasks to be accomplished through a choice of means, allowing for all intelligences to be addressed within a lesson. Finally, research question number (4) was answered when an examination was made of teachers' weekly journals and when grades for both experimental and control groups were compared.

SAMPLE POPULATION

Teachers participating in the study were from Virginia, New York, Florida, Texas, Georgia, California, South Carolina, and Kentucky. Australia and Germany were the two other countries that participated. The teachers selected students who were enrolled either in a foreign or second language class, grades K–12. Levels in the foreign language classes included I, II, and

III. English as a second language (ESL) classes included level B-1 (Appendix A). Since this study took place during the third marking period of the school year, students were not randomly selected or assigned. Students participating in the study attended schools in urban, rural, and suburban geographic locations. Their ages ranged from 6 to 18 years old.

RESEARCH DESIGN

Quasi-Experimental Groups

Students in the experimental groups were selected by the teachers. They received instruction that incorporated the MI theory. These lessons were generally more learner-centered and include a wide variety of instructional activities. Each student's dominant intelligence(s) was/were identified using the *Test Your Seven Kinds of Smart* (Armstrong 1993) multiple intelligences survey. Thematic and content-based lessons that strengthened the multiple intelligences were designed. The objective was to construct planning webs and themes (Appendix A) that incorporated a wide range of multiple intelligences activities and products. Lesson plans were developed using a variety of planning tools. Additionally, teachers kept daily MI logs to chart their interventions and weekly journals to highlight progress, successes, and trends. To assess the effects of intervention, each week the students completed informal classroom interviews, exit slips, and surveys. Teaching strategies included demonstrations, modeling, feedback response, learning centers, discussion, students' responses to learning experiences, total physical response (TPR), hands-on experiences, and cooperative learning (Appendix A).

Quasi-Control Groups

Students in the control groups were taught using a modified pedagogy. Instruction was mostly teacher centered. Teachers relied heavily on the use of rote drill and memorization. There were no cooperative learning, group, or interactive activities. Students did not engage in any hands-on activities. Textbooks and occasional black-line master transparencies were the only visuals used. Lessons were mostly thematic. Plans were constructed to strictly follow the textbook, page after page. There was no inclusion of supplemental material(s) for variety or enrichment. Teachers were instructed to maintain standard classroom procedures for the "control" groups. Instructional strategies were to be representative of their *normal* classroom routines, with no significant changes implemented during the nine-week period of the MI study. These students continued to receive

instruction in the target language through conventional instructional strategies. Data were collected based on the four research questions.

DATA COLLECTION

Just as in the Phase I, the pilot study for Phase II of the MI study, data were collected during the second or third quarter of the academic year, as teachers implemented MI activities in their foreign and second language classes for approximately nine weeks. To begin the MI study, teachers explained the research project to students in selected classes, secured parent permission for participation (Appendix B), and administered the informal MI survey (Appendix C). Data from surveys were compiled for continuous reference during instructional planning.

The researcher provided project teachers with data charts for weekly logs (Appendix D), in which they recorded brief descriptions and the frequency of implementation of MI activities in their classes. Participating teachers communicated electronically with the researcher, providing weekly updates and reflective comments on the ongoing progress of the research project. Their messages included pertinent observations of class responses and individual student reactions. As the study moved forward and teachers developed new strategies and assessments, these materials were shared with the MI study group. Some were placed on the MI study Web site. Three schools had two teachers participating in the project, and their mutual professional collaboration became a positive experience throughout the study.

During the 9-week period, teachers asked students to complete exit slips (Appendix E) in which they described individual reactions to the MI activities and alternative assessments. Teachers provided the researcher with descriptive narratives to summarize their own feelings about the research project. To note academic progress, teachers compiled grade reports for target groups of students at the end of the third quarter. These data were compared with student achievement data from the second quarter, which was prior to implementation of the MI study. Grades of individual students in the experimental and control groups were compared for the second and third quarters of the academic year.

METHOD

Teachers administered a Multiple Intelligences Survey, adapted from the book *Seven Kinds of Smart* (Armstrong 1993). Teachers collected informal data about individual students and their intelligence profiles (Appendix C). The results of the survey helped to increase student self-awareness and

strengthened teacher understanding of individual student differences. As the project proceeded, teachers modified their lessons in selected classes, attempting to activate all the multiple intelligences as they presented thematic units. They developed instructional plans that incorporated a number of multiple intelligences activities and products. Using a variety of planning tools, teachers exchanged ideas and shared successes as they implemented new and innovative instructional strategies.

Throughout the process, teachers kept informal journals to highlight progress, note successes, and identify general trends observed. To document effects of the MI interventions, data collected from informal interviews (Appendix F), weekly logs (Appendix D), student exit slips (Appendix E), and MI surveys (Appendix C) were compiled. Documentation regarding the impact of multiple intelligences instruction in these classes included reflective journals provided by participating teachers, weekly logs, and classroom observations. Information from students in experimental groups was determined from student products, performance rubrics, student exit slips, and MI surveys.

DATA ANALYSIS

Descriptive data were collected providing answers to the four research questions. Data analysis compared students' outcomes on the MI survey (pre- and poststudy) with their actual performance in class (i.e., daily participation and quiz, test, and project grades) for both groups. An analysis was made to determine what correlation, if any, was evident between the MI survey and student performance. Data were examined by looking for emerging patterns in both student performance and teacher's instructional strategies. Both qualitative and quantitative data were collected. Qualitative data consisted of teachers' electronic communications (i.e., reflective journals, weekly activity logs, lesson plans, project descriptions, student exit slips, and participants' comments at the end of the study). Quantitative data included looking at student grades both before and after the MI study to determine if there had been a change. Finally, a reflective meta-analysis was conducted with teachers at the end of the study, ascertaining their views on their participation in this action research.

RESULTS AND DISCUSSION

The effects of MI intervention were documented through observations, exit slips, survey checklists and student reactions, reaffirming expectations that how one is taught, what strategies are used, and in what manner information is presented can and do affect student learning. Learner-centered

instruction from the perspective of multiple intelligences further demonstrated students' strengths and weaknesses can be affected by a teacher's pedagogical style. Most students in both the experimental and control groups demonstrated growth in oral and written proficiency in the target language at the end of the third quarter (i.e., marking period). Results showed that students in experimental groups receiving MI-based instruction outperformed those in the control groups. Additionally, the exit slips demonstrated a high degree of satisfaction and positive attitude toward foreign/second language study. Students in the experimental classes were more enthusiastic about learning and behavior problems were minimized. Teachers felt that their classroom management skills were enhanced.

One surprising result of the MI study was the affective outcome. Most students expressed positive feelings about teachers using a variety of instructional strategies as well as assessment practices that addressed the multiple intelligences. Teachers attributed this positive reaction to the greater degree of flexibility, variety, and choice that MI strategies allowed students in their classrooms.

This action research study was designed and implemented to determine and better understand learner-centered instruction from the perspective of multiple intelligences. The purpose of this study was to identify, document, and promote effective real-world applications of MI theory in foreign language or second language classrooms. The researcher's premise was that given what we know about the educational needs of students, all teachers must be better equipped to widen their pedagogical repertoire.

LIMITATIONS OF THE STUDY AND SUGGESTIONS FOR FURTHER RESEARCH

Phase II of the MI study highlighted some preliminary findings and raised some important questions for the continuation of research in Phase III. Scant research related to the application of the theory of multiple intelligences in foreign/second language classrooms is available, so this second study attempted to broaden the research base.

Among the limitations of the MI study are the following:

- Classes represented different ages/grades (K–12) and different ability levels (honors classes, regular classes, LD students, English language learners).
- Target content in selected French, Spanish, ESL classes differed.
- The degree of implementation of MI activities and strategies varied from teacher to teacher.

- Grading policies differed in each school setting.
- Alternative assessments represented a variety of scoring methods.
- Background in the theory of multiple intelligences and practical experiences among participating teachers were very varied, with some having an extensive background prior to the study and others who were new to this approach.

CONCLUSION

This provides further evidence that the theory of multiple intelligences may have significant implications for instruction in foreign and second language classrooms. MI theory has the potential to make a positive impact on both teachers and students. Practitioners who thoughtfully apply the theory to support educational goals may discover multiple paths to contribute to their overall effectiveness as educators. Teachers who plan and organize instruction around the learning preferences of individual learners, emphasizing special strengths and shoring up underutilized gifts and talents, may unlock the full learning potential of their students. The benefits of implementation of the MI theory in daily instruction relate to academic achievement and student motivation. Phase III, already underway, will explore these issues in greater depth to better understand culturally and linguistically diverse students.

APPENDIX A

Definition of Terms

Howard Gardner's Eight Multiple Intelligences

Bodily/Kinesthetic	The ability to use one's mental abilities to manipulate and coordinate movements of one's physical body
Interpersonal/Social	The ability to recognize and understand others' feelings and interact appropriately with other people
Intrapersonal/Introspective	The ability to perceive one's own feelings and motivations for planning and directing one's life
Logical/Mathematical	The ability to detect patterns, calculate,

	think logically, and carry out mathematical operations
Musical/Rhythmical	The ability to recognize, compose, and remember tonal changes, rhythms, and musical pitch
Naturalist	The ability to recognize and classify natural surroundings, such as flora and fauna or rocks and minerals
Verbal/Linguistic	The ability to effectively manipulate language to express oneself and allows for the use of language as a means to remember information
Visual/Spatial	The ability to perceive and manipulate images in order to solve problems

Intelligence an identifiable set of operations or thought processes that can actually be observed (Gardner, 1983)

Learning style a general approach a learner uses to learn a new language (Scarcella & Oxford, 1992, p. 61)

Planning webs and themes a series of learning sequences designed around a theme or topic which provides students the opportunity to use oral language, reading, writing, and critical thinking for learning and sharing ideas

B-1 As defined by the participating teacher, "My B-1 level students are considered *intermediate* English language learners as determined by their scores on the Degrees of Reading Power (DRP) test, ranging from about 25–40 for this level. This is not a precise definition, and of course minimum oral and writing proficiencies using the county (Fairfax) rubrics also determine the level."

APPENDIX B

Letter to Parents Requesting Permission for MI Study Participation Multiple Intelligences Research Project

October 2001

Dear Parents/Guardians:

Would you like your son/daughter to explore new dimensions of learning? I am announcing a wonderful opportunity for participation in a

national research project focusing on Howard Gardner's Theory of Multiple Intelligences. This theory suggests that every individual is intelligent and that each person has different learning preferences and strengths. The Multiple Intelligences Research Project offers foreign/second language teachers new strategies for instruction, with the purpose of enhancing classroom learning experiences for their students. One of the main goals of the study is to stimulate and enrich the instruction your child receives in his/her foreign or second language class.

There are no special requirements for project participation. Your son/daughter's teacher has volunteered to work with me in collecting data for the research study. Please be advised that all information will be kept confidential, your child's privacy will be protected at all times. Please contact me if you have questions or concerns or would like more background information on the project.

I hope you will consider approving this dynamic learning opportunity for your child. Your signature on this page verifies that you have read this letter and grant permission for your son/daughter to participate in the Multiple Intelligences Research Project.

Sincerely,
Associate Professor of Education

_____ _____

parent signature print name of child

_____

date

APPENDIX C

Multiple Intelligences Survey Instrument (Armstrong, 1993)
Multiple Intelligences Research Project
"Your Seven Kinds of Smart" (+ 1)
Adapted from Thomas Armstrong, PhD

Check (x) each statement that applies to you.

Verbal/Linguistic Intelligence **TOTAL** = ——

—— Books are very important to me.
—— I hear words in my head, before I read, speak, or write them down.
—— I am good at word games, like

Scrabble or Password.
—— I enjoy entertaining others or myself with tongue twisters, rhymes, or puns.
—— English, social studies, and history are easier for me than math and science.
—— I have recently written something that I am especially proud of.

Logical/Mathematical Intelligence **TOTAL** = ——

—— I can easily compute numbers in my head.
—— Math and/or science are among my favorite subjects in school.
—— I enjoy brainteasers or games that require logical thinking.
—— My mind searches for patterns and regularities in things.
—— I am interested in new developments in science.
—— I believe that almost everything has a logical explanation.

Visual/Spatial Intelligence **TOTAL** = ——

—— I often see clear visual images when I close my eyes.
—— I am sensitive to color.
—— I enjoy doing jigsaw puzzles.
—— I like to draw or doodle.
—— I can easily imagine how something might look from a bird's eye view.
—— I prefer looking at reading material with lots of illustrations.

Bodily/Kinesthetic Intelligence **TOTAL** = ——

—— I participate in at least one sport or physical activity on a regular basis.
—— I like working with my hands on concrete activities (like carpentry, model-building, sewing, weaving).
—— I like to spend my free time outdoors.
—— I enjoy amusement rides and other thrilling experiences.
—— I would describe myself as well coordinated.
—— I need to practice a new skill, not just read about it or see a video about it.

Musical/Rhythmic Intelligence **TOTAL** = ——

—— I have a pleasant singing voice.
—— I play a musical instrument.
—— My life would not be so great without music.
—— I can easily keep time to music with a simple percussion instrument,
—— I know the tunes to many different songs and musical pieces.
—— If I hear a musical selection a couple times, I can usually sing it fairly accurately.

Interpersonal Intelligence **TOTAL** = ——

—— I am the sort of person that others come to for advice.
—— I prefer group sports (like softball) rather than individual sports (like swimming).
—— I like group games like Monopoly better than individual entertainment.
—— I enjoy the challenge of teaching others how to do something.
—— I consider myself a leader, and others have called me a leader.
—— I like to get involved in social activities at my school, church, or community.

Intrapersonal Intelligence **TOTAL** = ——

—— I regularly spend time alone, reflecting or thinking about important questions.
—— I have opinions that set me apart from the crowd.
—— I have a special hobby or interest that I like to do alone.
—— I have some important goals for my life that I regularly think about.
—— I consider myself to be independent minded or strong willed.
—— I keep a personal diary or journal to write down my thoughts or feelings about life.

Naturalist **TOTAL** = ——

—— I have a garden and/or like to work outdoors.
—— I really like to go backpacking and hiking.
—— I enjoy having different animals around the house (in addition to a dog or cat).
—— I have a hobby that involves nature.
—— I like to visit zoos, nature centers, or places

with displays about the natural world.
—— It's easy for me to tell the difference between different kinds of plants and animals.

Areas of Strength (4 or more checks)

_____

_____

What I learned about myself that I did not know before

_____

APPENDIX D

Teachers' Weekly Log: Implementation of Multiple Intelligences Activities
MULTIPLE INTELLIGENCES RESEARCH PROJECT

DAILY LOG

Name: _____ Week # _____ Dates _____

	Monday	Tuesday	Wednesday	Thursday	Friday
Bodily Kinesthetic					
Interpersonal Social					
Naturalist					
Visual Spatial					
Musical Rhythmical					
Intrapersonal Introspective					
Logical Mathematical					
Verbal Linguistic					

APPENDIX E

Student Exit Slip

MULTIPLE INTELLIGENCES RESEARCH PROJECT

Student Exit Slip

Please answer the following questions.

1. List two (2) things that you liked about today's class.

_____

_____

_____

_____

2. What is one (1) thing you would like to change about this class?

_____

3. Today I did really well at

_____

_____

APPENDIX F

Informal Student Interview

MULTIPLE INTELLIGENCES RESEARCH PROJECT

Sample Informal Interview

Teacher "How was class for you today?"
Student "This class is really cool! We always do lots of different activities rather than just one thing."
Teacher "Tell me which activities you enjoyed most?"
Student "For me it's good to work in groups or pairs. That way if I make a mistake it's not in front of the whole class."
Teacher "How do you feel about my using the multiple intelligences theory to try and reach more students?"
Student "It's so much better for us because we understand how we learn best and that's something we can take with us to all of our classes."

APPENDIX G

Multiple Intelligences' Instructional Strategies and Activities for Language Learners

Bodily/Kinesthetic	Role playing, Dancing, TPR, TPRS, Hands-on learning, Manipulatives, Multimedia games or activities, Aerobic alphabet, Building a model or 3-D project
Interpersonal/Social	Cooperative teams, Paired activities, Peer teaching, Board games, Simulations, Surveys and polls, Group brainstorming, Situations or dialogues
Intrapersonal/ Introspective	Describe/write about preferred way(s) of spending free time, Keep a journal on a particular topic, Engage in independent study
Logical/Mathematical	Word order activities, Grammar relationships, Pattern games, Number activities, Classifying and categorizing, Sequencing information, Computer games, Cause and effect activities
Musical/Rhythmical	Write jingles for a commercial, Jazz chants to remember vocabulary/grammar/verbs, Musical cloze activities, Create music for skits and plays, Use music as a stimulator, Look for tonal/ rhythmic patterns in music of target language
Naturalist	Describe changes in the local environment, Debate the issue of homeopathic medicine versus store-bought remedies, Plan a campaign drive which focuses on saving an endangered species
Verbal/Linguistic	Debates, Storytelling, On-line communications (E-pals), Group discussions, Word-processing programs, Word games
Visual/Spatial	Using graphs and diagrams, Drawing a response, Video exercises, Computer slide shows, Multimedia projects, Mind mapping, Graphic organizers

Note Teachers' weekly journals to the researcher revealed that their selection of classes for "experimental" and "control" was primarily based on their decision to implement the MI theory with a class that they felt needed more learner-centered instructional strategies.

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