Effects of Multiple Intelligence Teaching Strategies on the Academic Achievement of Advanced Placement English Students

Amanda Eclipse & Diana Harland

School of Education

College of William and Mary

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Dr. Kyung-Hee Kim

Literature Review
Abstract

This quasi-experimental study determines whether AP English (APE) students taught using Multiple Intelligence Teaching Strategies (MITS) will outperform those using Direct Instruction (DI). One hundred twenty students from three schools in suburban central Virginia will participate. All students will take a pre-test, based on previous APE exams, and a post-test, the APE exam. Three classes totaling 60 students will receive the Multiple Intelligences Development Assessment Scales (TEEN-MIDAS, Shearer, 1994) test to determine multiple intelligences. It is hypothesized that the experimental group’s mean gain will exceed the control group’s, supporting the conclusion that MITS increases academic achievement.

Key words: academic achievement, AP English, direct instruction, multiple intelligence teaching strategies
Effects of Multiple Intelligence Teaching Strategies on the Academic Achievement of Advanced Placement English Students

Multiple Intelligence Teaching Strategies (MITS) is a teaching method shown to increase academic achievement of schoolchildren in many subjects (Douglas, Burton & Reese-Durham, 2008). MITS is a practical application of Howard Gardner’s theory of multiple intelligences and tailors curricula to specific strengths of students and collaboration among different learning styles. DI implements a formulated teaching method, favoring continuous interactive relationships between student and teacher and emphasizes traditional verbal and analytical skills (Douglas et al., 2008).

Purpose of the Study

This study will determine if MITS, in comparison to DI, will positively influence the academic achievement of APE students.

Justification of the Study

MITS is primarily implemented on elementary and middle school students as a possible corrective to academic upheaval because their general course of study make it amenable to multiple learning styles (Denig, 2005; Gardner, 1993). Research shows that MITS raises young students’ academic achievement than DI (Douglas et al., 2008; Isık & Tarım, 2009; Pérez & Beltrán, 2008). Research rarely addresses MITS for improvement in intellectually challenging secondary education honors programs (Winebrenner, 2006). Our research investigates whether MITS can function as a corrective and amplifying tool for already achieving students.

Literature Review

Multiple Intelligences Theory
Gardner’s theory of multiple intelligences rejects IQ as a totalizing determiner, seeing eight categories of intelligence (Pérez & Beltrán, 2008). Under this framework, MITS encourages educators to cater to individual learning styles, and diversely approach academia to correspond with separate strengths, preventing weak students from deteriorating. Supporters argue MITS enables individualized instruction to promote success, especially in diverse and special-needs classrooms (Kornhaber, Fierros, & Veenema, 2004; Pérez & Beltrán, 2008).

**Direct Instruction**

A more traditional approach to instruction, DI holds sway in American education (Douglas et al., 2008). DI focuses on content, drill, and student-teacher interaction instead of learner diversity (Hoerr, 2002). Hoerr (2002) calls DI a “banking process,” where students receive information and learn through practice.

**Research Question, Hypothesis, and Definitions**

**Research question.** Will teaching APE students using MITS increase academic achievement more than the control group?

**Hypothesis.** MITS will positively affect the academic achievement of APE students.

**Definitions.** The MI abilities of students are measured by the Multiple Intelligences Development Assessment Scales (MIDAS). MITS is based on Gardner’s theory of MI (1993). Academic achievement is measured by a pre- and post-test in the form of the APE exam.

**Method**

**Participants**
In this study six APE classes, for an approximate total of 120 students, will be selected from public schools of a large, suburban Virginia county based on similarities. From this pool of classes, three will be assigned for MITS intervention, and three in a control group, using DI.

This school district has 58,969 students in 65 schools (National Center for Educational Statistics, 2007). The district totals 303,469; 67.9% Caucasian, 22% African American, 3% Asian, 5.9% Hispanic/Latino, and 1.5% multiracial; 7.8% are non-English speaking privately. Median household income is $72,327. Of adults, 88.1% graduated high school, and 32.6% hold a Bachelor’s degree or higher. The U.S. population has 65.6% Caucasian, 12.8% African American, 4.5% Asian, 15.4% Hispanic/Latino, and 1.7% multiracial. Private non-English speakers equal 17.9%. Median household income is $52,029. High school graduates total 80.4% and 24.4% hold a Bachelor’s degree or higher (U.S. Census Bureau, 2008).

External Validity

This district is wealthier and more educated, with fewer households speaking a non-English language compared to the national average. The population is diverse with more African American residents. Our study will be generalizable to APE courses offered in other suburban school systems.

Instruments

MIDAS determines individuals’ strongest MI, increasing mental self-awareness, and achievement (Shearer, 1994). It contains seven main scales and 24 sub-scales. The TEEN-MIDAS test contains 119 items designed for ages 14-18 and is administered through group self-completion or individual interviews and considers daily activities
requiring cognitive talent. The test is computer-scored through the Online MIDAS System or by mail-in scoring to determine categorical intelligence. MIDAS reports a mean test-retest reliability of .81 and inter-rater reliability of .80 (Shearer, 1997).

MIDAS scores high in construct and content validity, especially in the linguistic category, and the lowest in bodily/kinesthetic (Shearer, 1997).

The APE exam, developed alongside APE curriculum, acts as the official measurement for student achievement. The exam boasts high content validity; results are valuable to prospective colleges because of high predictive validity (Modu, 1981). To measure students’ academic improvement, a past APE exam pre-test will be given over two class periods. The first class testing period will cover multiple-choice, and two essays in the second. Previous years’ certified College Board raters will score this pretest. The final examination occurs in May at College Board designated sites by an official proctor. Computers score multiple-choice sections, and at least two expert raters score essays to ensure inter-rater reliability.

**Design and Procedures**

This study has quasi-experimental nonequivalent comparison-group pre- and post-test design. The researchers will administer the pre-test at the beginning of the year to all participants, and collect and compile scores. Three classrooms will be assigned to experimental treatment of MITS and three to control group of DI. Before school begins, MITS teachers will receive MIDAS Teacher Profile Packets with information and workbooks to develop MI activities along with training. TEEN-MIDAS will be administered to MITS students in a computer lab by teachers and scored through the Online MIDAS System. Researchers will record scores. Both groups will receive the
APE curriculum through MITS or DI, using identical material, lesson goals, objectives, and due dates.

DI classes will focus on the drill-and-practice method; students will learn through direct lectures, overhead notes, and teacher-developed essay questions. MITS classrooms will focus attention on each student’s MI strengths and teach to these strengths. With each new lesson, teachers will first conduct a whole classroom instruction. Students will complete all assignments through cooperative learning groups, learning centers concentrated on different intelligences, and freely-chosen individual assignments.

Finally, College Board will administer the final APE Exam and researchers will collect data upon availability.

**Timeline**

- **April 2010**: Submit research proposal to IRB.
- **Early-August 2010**: Experimental and control classrooms assignment. MITS teacher’s training.
- **September 2010**: MIDAS administered and scores collected. Pre-test taken and scored. MITS begins.
- **December 2010**: First check-in with teachers.
- **March 2011**: Second check-in with teachers.
- **May 2011**: Post-test taken.
- **Mid-June 2011**: Post-test test scores collected and compiled. Data analysis will begin.
- **October 2011**: Writing results will begin.

**Internal Validity**
**Location.** We will control the classroom environment during the pre-test and intervention for iniquities. Because the district is more affluent than the nation, student’s zip codes will be recorded to account for neighborhood differences.

**History.** Teachers may not implement MITS to a desirable degree, be uncomfortable with the new strategy, and revert to their preferred methods. By observing the classrooms, teachers may feel inclined to adhere to MITS.

**Attitudes of Participants.** Some AP students may rebel against high-stakes testing; this could be solved through rewards. To motivate students to perform well, the post-test will count toward colleges. The pre-test will count toward their class grade.

**Testing.** Students may experience “practice effect” for the post-test, having taken the pre-test and been exposed to practice AP exams and can be controlled by ensuring students have the same practice and exposure to AP exams.

**Implementation.** Teachers may be wary of MITS if it is alien to their typical mode and present this strategy unenthusiastically or without confidence. This could be solved through extensive preparation for teachers.

**Data Analysis**

We will record the scores from the pre- and post-tests from the experimental group and the control group separately and find the means. The mean scores on the pre-test for the experimental group and the control group will be subtracted from the mean scores on the post-test for the same groups to find the mean gain. The mean gain of the experimental group will be compared to the mean gain of the control group to see if academic achievement increased using MITS.

**Expected Results**
The mean gain in improvement between the pre- and post-test will be significantly greater for the MITS group than the DI group.

**Discussion**

**Conclusions**

If mean gain between the pre-and post-test of the MITS group is greater to a statistically significant degree than the DI group, the research will support the hypothesis that MITS will improve student achievement in higher academic settings.

**Implications**

If mean gain in the scores of the MITS group is significantly greater than the DI group, then MITS should be deployed in school’s higher-level courses.

**Budget**

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References


