

# The Effects of Integrating Art Into Junior High Earth Science As a Multiple Intelligence Approach to Learning

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## Background

Wrenshall School is a small K-12 school in a rural community situated about 20 miles southwest of the tip of Lake Superior in Wrenshall, Minnesota. Our students are a compassionate group that will go out of their way to help a fellow student, teacher, or member of the community. Furthermore, the majority of our students are active outside of school. Three-fourths of the students participate in extra-curricular activities; many work at part-time jobs in neighboring communities; some are responsible for work on family farms. Despite their strong work ethic outside of the classroom, some of our students do just enough to pass. My goal was to determine a means to motivate the 14 students in my eighth grade earth science class, because students that find learning enjoyable will be more successful. To do this, I incorporated various forms of art including language arts, fine arts, and music into my curriculum. This multiple intelligence approach can be used in a positive way in my earth science class to encourage students to develop a deeper appreciation for science.

## Literature Review

- Today's students are bored in the classroom. They are not excited with the monotonous day-to-day procedures of doing rote assignments and paper and pencil tests (Cluck & Hess, 2003).
- An increase in motivation can lead to an increase in learning and thus higher grades (Budge, 2000).
- Howard Gardner's Theory of Multiple Intelligences states that there are at least eight different ways in which students learn. He believes students "would be better served if disciplines could be presented in a number of ways and learning could be assessed through a variety of means" (Gardner, 1991, p. 12).
- Some students who do poorly in school do so as a result of classroom instruction being mostly logical/mathematical and verbal/linguistic. These students learn by way of different intelligences (Callahan et al., 2002).
- Art projects can be used in other disciplines as a way to strengthen or emphasize what the child is already learning (Borden, 2007).
- Integrating different forms of art into a science curriculum can be shown to rely on all of the intelligences (Mbuva, 2003).

## Works Cited

- Borden, M.E. (1997). *Smart start the parents' guide to preschool education*. New York: Facts On File, Inc.
- Budge, D. (2000). *Motivating students for lifelong learning. What works in innovation in education. Education and skills*. Paris, France: Organization for Economic Cooperation and Development. (ERIC Document No. ED449566). Retrieved February 20, 2007, from ERIC database.
- Callahan, J.F., Clark, L.H., & Kellough, R.D. (2002). *Teaching in the middle and secondary schools, 7th ed.* Upper Saddle River, NJ: Pearson Education, Inc.
- Cluck, M., & Hess, D. (2003). *Improving student motivation through the use of the multiple intelligences*. Chicago, IL: Master of Arts Action Research Project for Saint Xavier University. (ERIC Document No. ED479864). Retrieved February 20, 2007, from ERIC database.
- Gardner, H. (1991). *The unschooled mind: how children think and how schools should teach*. New York: Basic Books.
- Mbuva, J. (2003). *Implementation of the multiple intelligences theory in the 21st century teaching and learning environments: a new tool for effective teaching and learning in all levels*. La Jolla, CA: National University. (ERIC Document No. ED476162). Retrieved February 20, 2007, from ERIC database.



## Focus Question

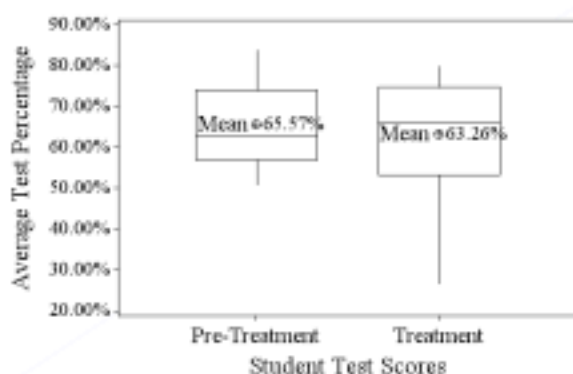
Will I be able to increase student learning and motivation in my eighth grade earth science class by integrating art with science as a multiple intelligence approach to teaching and learning?

## Methods

At the beginning of the treatment, the 14 eighth grade earth science students took a multiple intelligence inventory test. Based on these results, students worked on chapter projects. These projects took the place of traditional paper and pencil homework and focused on one of the following intelligences: verbal/linguistic, mathematical/logical, visual/spatial, musical, kinesthetic, and naturalistic. Some students worked in groups if they scored high in the interpersonal intelligence, while other students worked individually if they scored high in the intrapersonal intelligence. These projects were graded using a rubric. Students filled out pre- and post-treatment surveys, wrote in their project journals, and participated in interviews. Data was analyzed to determine if student learning and motivation increased during the treatment period.

## Data Analysis

Student test scores became more varied during the treatment period. Scores increased for certain students, but not others.



A comparison of the Pre-Treatment Survey to the Treatment Survey indicated a shift in students' motivation to learn about science. During the pre-treatment period, the distribution for the responses about motivation was nearly symmetric with the peak at "Neutral." During the treatment period, however, the motivation amongst students increased.

How students rated the statement, "This homework motivated me to learn about science."

