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Hannah Smith
hannahrsmith@my.uri.edu

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Incorporating Multiple Intelligences Within Instructional Strategies

Hannah Smith

University of Rhode Island

Abstract

Teachers know there are many different ways to include students' intellectual strengths within their daily instruction. Howard Gardner (1983) proposed the idea of multiple intelligences to broaden the scope of an individual's potential beyond simply an IQ measure. Gardner originally grouped the broad range of human abilities into eight comprehensive categories, or in other words multiple intelligences (MIs) including: linguistic, logical-mathematical, spatial, bodily-kinesthetic, musical, interpersonal, intrapersonal, and naturalistic. Multiple intelligences are used to present and assess students' intellectual abilities in a variety of ways. This paper summarizes my study on how catering towards students' measured MIs influence their academic engagement. This study comprises the experiences of ten boys and nine girls from a middle-class, rural elementary school. It is important to note that this is an inclusive classroom with students of very diverse needs.

In order to gather data on my students' abilities, I utilized an appropriate grade-level multiple intelligence inventory. After my students completed the inventory, I analyzed the results to determine the most and least prevalent MIs in my classroom. Additionally, I examined the differences between the strengths and weakness of students with an Individualized Education Plan (IEP) and students without. Through incorporating their strengths, I aimed to better meet the needs of all my students and assisted them in mastering the new skills they were taught. During this study, I observed the relationship between my students' scores on their MI inventory as a group, my physical observations of them, and students' artifacts. I used this information to create a coherent understanding of their abilities to comprehend the new skills and information they were taught. The results of my study helped guide further instruction and draw conclusions on the most effective instructional strategies used. There are many ways one can present a

curriculum to students. At the completion of this study I noted the effectiveness – or lack

thereof—of teaching with instructional strategies that targeted students' MIs.

Introduction

Students learn in a variety of ways, yet they are assessed virtually only one way, through writing. Standardized testing is one of the sole ways students are assessed in this day and age. It has been argued that standardized testing is not the best ways to assess all student ability to demonstrate certain skills. As Popham (1999) states, "employing standardized achievement tests to ascertain educational quality is like measuring temperature with a tablespoon. Tablespoons have a different measurement mission than indicating how hot or cold something is" (p. 3). Popham explains how standardized testing is norm-referenced, meaning that students results are compared to a national sample of students from the same age or grade level. Students are not born with identical intellectual abilities and their various forms of intelligence are not evaluated by standardized tests (Popham, 1999). In this country we only focus on measuring knowledge in one way, this should not be the case. Students have different degrees of intellectual strengths and therefore should not be assessed on solely one form of intelligence through standardized testing.

Similar to assessment methods, a variety of instructional methods should be utilized to enhance academic engagement. If students' needs are not being met during instruction they will not be engaged in their learning and will not internalize new information being taught. Incorporating multiple intelligences within instructional strategies keeps students engaged and gives students the potential to be avid learners in all subjects. In order for optimal learning, students must have information introduced to them through a medium that they best comprehend. In addition, they should be assessed in a way that aligns to the way they are taught. It is important to focus on intellectual strengths for all students. Both students with and without an

Individualized Education Plan (IEP) can benefit from using a multitude of instructional strategies.

As a classroom teacher it is essential to consider student needs in order to effectively teach them. Multiple intelligences are too commonly neglected in the classroom. Multiple intelligences describe a student's intellectual strengths. Teachers should be focused on incorporating student strengths and interests in their instruction. When students are not engaged in instructions, they are not able to effectively learn the material. Günüç (2014) conducted a study measuring the relationship between student engagement and their academic engagement. As a result of this study, he found student engagement had a strong relationship with academic achievement, especially cognitive engagement. In addition, he found that class engagement directly predicted student achievement (Günüç, 2014). This proves that teachers should be focused engaging and assessing students in a way that is suitable to them. As all teachers know, students do not learn the same way and therefore should not be assessed in the same way. Students should enjoy going to school and learning. By incorporating their intellectual strengths and interests their engagement will be dramatically increased. Thus, the purpose of this study is to analyze the effects of incorporating the participants' intellectual strengths within instructional strategies. We will use the results to guide further instruction.

Review of Relevant Literature

To begin, Howard Gardner's multiple intelligences are used as a means of broadening the scope of human's potential beyond simply an IQ measure (Gardner, 1983). Gardner questioned the accuracy of an IQ score because it went outside the norms of one's natural learning habitat and forced them to undergo unfamiliar tasks to measure their intelligence. He believed intelligence should be measured through solving problems and creating outcomes within a

context-rich and naturalistic setting (Armstrong, 2009). Gardner grouped the broad range of human abilities into eight comprehensive categories, or in other words multiple intelligences (MIs). Multiple intelligences are used to measure students' intellectual abilities, not learning styles. While learning styles are necessary in teaching to students MIs, they are not the same as MIs. It is important to remember that multiple intelligences do not show whether or not a student is able to learn a certain type of thing; it is simply a measure of a student's different aptitudes of each intelligence. Gardner's eight multiple intelligences are linguistic, logical-mathematical, spatial, bodily-kinesthetic, musical, interpersonal, intrapersonal, and naturalist.

If a person is said to have linguistic intelligence they are able to use words effectively, orally or in writing. They are typically able to easily manipulate syntax or language structure, such as rhetoric or metalanguage. The visual-spatial intelligence is the ability to perceive the visual-spatial world accurately with sensitivity to color, line, shape, and form and perform and visualize transformations of these perceptions. Bodily-kinesthetic describes the ability to physically express ideas and feelings with proprioceptive, tactile and haptic capacities. Interpersonal intelligence relates to one's ability to read and make distinctions in mood, intentions, motivations, and feelings of other people. People who have a strong intrapersonal intelligence have a great self-knowledge and ability to act on that knowledge; they are overall very self-aware. Lastly, the naturalist intelligence includes sensitivity to natural phenomena, knowledge of various species and the ability to differentiate inanimate objects in an urban setting (Armstrong, 2009).

Research Design

Based on my experiences in classroom and in the existing research on multiple intelligences, I posed the following research question to investigate:

What are the effects of incorporating students' intellectual strengths within instructional

and assessment strategies?

As a student teacher, I was placed in a local elementary school for the 2018 spring semester. The

setting of this study was a rural, inclusive classroom with 19 students. In order to address my

research question, I first located an appropriate multiple intelligence inventory for the grade-

level and reading-levels of my students (Figure 1). I then distribute a multiple intelligence

inventory by reading the items verbally to account for the variety of reading abilities present in

my classroom.

Figure 1. Multiple intelligence inventory (Candler, 2011, p. 15).

On the inventory, there were 24 statements that students answered on a scale of 0-5, zero

being "I do not relate" and five being "I completely relate to this statement. This is me." There

were three statements that related to each intelligence. The students only received a half sheet

(the half sheet to the left of the dotted line in Figure 1) when responding to the inventory

statements. I later recorded the data based on their results. The possible range of scores on the

inventory was a high score for each intelligence 15 (score of 5 for each statement) and low score

0 (score of 0 on each statement). The inventory was not organized by intelligence in order

eliminate the ability for a student to subconsciously categorize themselves based on

preconceived and assumed self identity. This allowed students to have a more honest perception

of themselves. When completing the inventory I read each statement to the class as they

completed it. Having such a variety of ability, many of these student would be initially

intimidated by the amount of words on the page and not accurately answer the questions. In

addition, there are a few of the students who may struggle on reading some of these words.

Reading the inventory aloud avoided these factors that may skew the results. Supplemental to

distributing an MI inventory, I observed my students in two specific ways: how they misbehaved

and how they spent their free time in school to see how these actions aligned with student MI

results. Observing their misbehaviors helped me to further solidify my understanding of their

MIs.

        After distributing the MI inventory, I analyzed the data collected. My analysis of the

inventory data was two-fold: whole class and disaggregated based on IEP identification. Of the

participants in this study, there are 7 students with an IEP and 12 students without an IEP.

Initially, I observed the average score for each multiple intelligence in my class. Then, I took the

average score of students with an IEP and compared the results to student without an IEP to see

how these students' intellectual strengths differed.

        The next phase of my study consisted of using the results of the inventory to guide the

instructional strategies I utilized. For instance, I used the results to incorporate my students'

highest scored MIs within the way I presented information to them. In order to help scaffold my

students intellectual weaknesses I would include their strengths as well by including more than

one MI within instruction. While incorporating their strengths I would then observe their

engagement. By looking at student artifacts and assessment results, I would assess their level of

engagement. The assessment strategies used were not traditional. The assessment strategies

used in this study allowed students to choose to use their intellectual strengths. This information

was used to help to guide further instruction. The cyclic nature of planning for instruction while

considering MIs is represented in Figure 2.
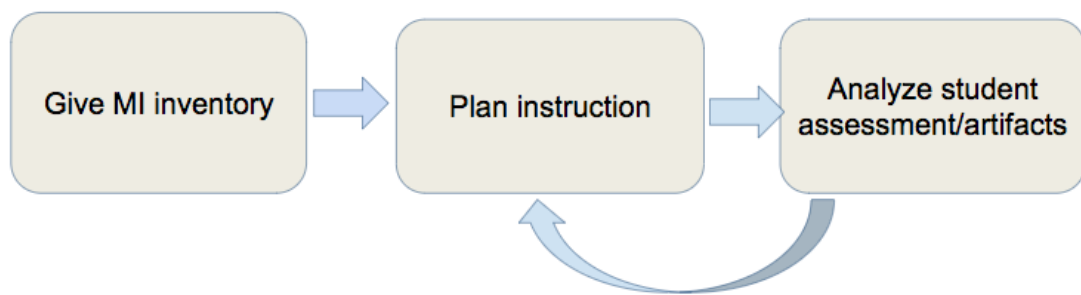
Figure 2. Instructional Planning Process based on students' MI results.

There were various situations where I taught to students strongest measured MIs in order to be

able to assess them with other MIs. For example, by using manipulatives to continually solve the

same type of math problem, students with a visual-spatial intelligence where able to list and pick

up on patterns to discover algorithms in math that wouldn't come naturally to them. They can

now use this pattern they discovered to solve the problem. As illustrated by this example,

instructional planning is an ongoing process that did not end after analyzing the results of the MI

inventory; it was necessary to continually plan future instruction based on students' performance

on assessment.

Findings

After analyzing the data of my class as a whole I discovered their strongest intelligence

was bodily-kinesthetic.
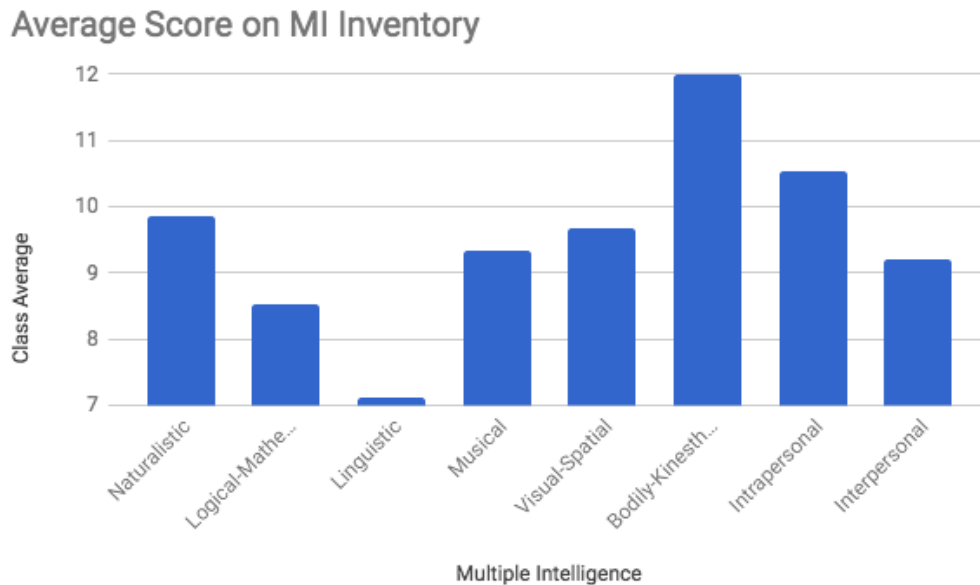
Figure 3. Average class scores on multiple intelligence inventory by MI.

The less prevalent MI represented was linguistic. As shown above in Figure 3, the order from

greatest to least prevalent MI as a class is: bodily-kinesthetic, intrapersonal, naturalistic, visual

spatial, musical, interpersonal, logical-mathematical, linguistic.

Surprisingly the data for students with an IEP was very similar. Below, Figure 4,

compares the results between students with an IEP and students without.

MI Inventory Results: IEP vs. No IEP

■ No IEP   ■ IEP

Figure 4. Comparison of results on MI Inventory between students with and without an IEP.

Although, students with and without an IEP did not score exactly the same average. There

results were very close. Both students with and without an IEP strongest MI was bodily-

kinesthetic. Their weakest MI is the linguistic intelligence. Students with and without IEPs'
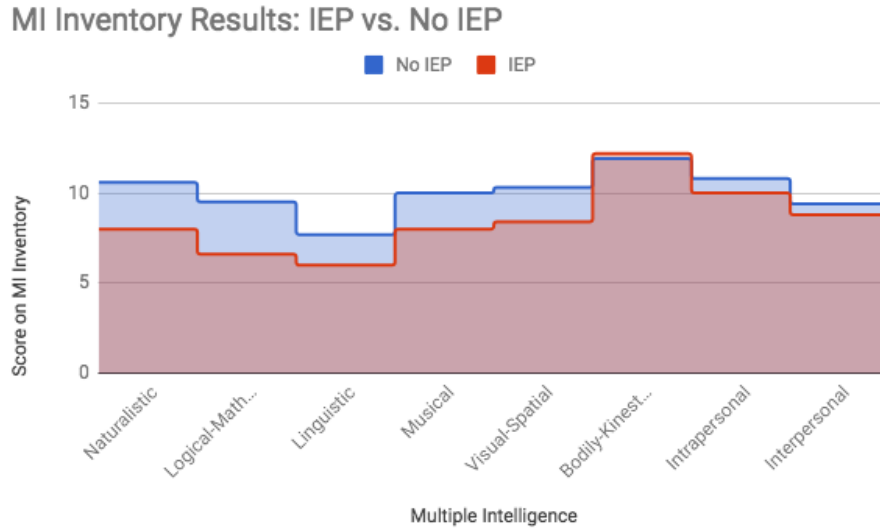
strengths both trickled down in the same order. The order of strengths to weaknesses have the

same exact progression, even though the averages are not exactly the same.

After collecting data on the participants' multiple intelligences, I analyzed my findings

through triangulation. My points of triangulation were represented as follows in Figure 5.

Score on MI Inventory

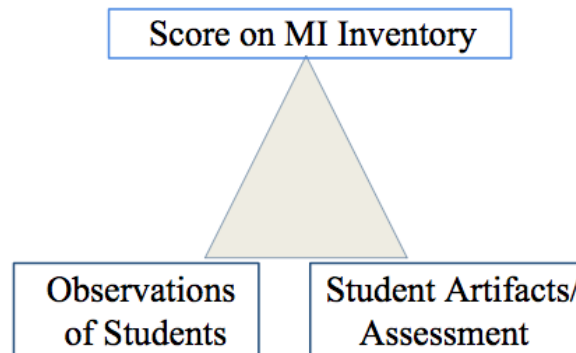Observations of Students

Student Artifacts/ Assessment

Figure 5. Points used to triangulate data to form conclusions

By considering my students scores on their MI inventory, classroom observations, and analyzing

student artifacts and assessment, I was able to draw conclusions on my students' level of

engagement. Through this triangulation, I created a coherent understanding of the effects

teaching to students' multiple intelligences had on student engagement. Students were more

engaged and were able to complete assessment tasks when their MIs were included within

instructional strategies.

Discussion

The class average MI inventory results aligned very closely with my initial observations.

When observing students, I viewed both their engagement and misbehavior as examples of

exhibiting their strengths and weaknesses. The class' strongest MI was bodily-kinesthetic. Like

most young children, my class was very fidgety. They had a hard time sitting still for long

periods of time. In addition, they responded very well to activities that engaged their entire

body. For example, when learning coordinate planes students had movements for each of the

vocabulary words and strategies we learned to tackle plotting points on a coordinate grid. I also

observed their free time choices to help decipher their MIs and came to the conclusion many of

the students would gravitate towards the hands-on games and physical activities, like basketball

or races, to keep themselves busy. After solidifying my observations with the results of the

inventory, I was sure to keep the students moving around the classroom throughout the day.

Spending too much time on independent work or whole class instruction lost the attention of

many students. It was important to keep the students transitioning between multiple hands-on

activities with movement and manipulatives. When instruction was focused on targeting their

bodily-kinesthetic intelligence, students were more engaged in the lesson and were able to apply

their knowledge through assessment. Introducing information through their bodily-kinesthetic

intelligence engaged students far more than when it was not included.

The least prevalent intelligence among the participants was linguistic. After observing my students, it was clear that many of them struggled with verbalizing their explanation of tasks. Although many students could complete certain tasks, it was difficult for them to explain their thinking process. This was especially prevalent in mathematics and science. Whereas most students struggled in learning through the linguistic modality, there was a focus put on include other multiple intelligences within instructional strategies when teaching to this intelligence. It was clear that students were able to better express themselves through their linguistic intelligence when they had information introduced to them through multiple MIs. For example, when students were able to "turn and talk" in their groups, visually representing their data on a graphic organizer or by using manipulatives they were better able to express their thinking process in writing or through full-class discussion.

The second most prevalent MI was surprisingly intrapersonal. In order to target this intelligence during potentially stressful situations like full class discussions, I focused on allowing students' to first record their answers on a personal whiteboard or notebook page before sharing their response to the class or a small group. As they recorded this information individually, I would circulate the room to check their answers for accuracy. This gave students more confidence to participate in class and gave them more time to self-reflect on their response before review of the questions. They were much more engaged and confident in their ability to complete the problems. We also took the opportunity to work on a neglected, yet vital skill in social development. We highlighted that intelligence through a daily empathy journal entry. When they returned to their seats after specials they would get started on writing about how they would show empathy in a social situation. This also helped to highlight one of their weaknesses, the linguistic intelligence.

The third strongest MI was naturalistic. This aligned with my students misbehavior and close attention to the weather and what is occurring outside of the window. I incorporated life like experiences in all subjects. Simply being outside while reading made students more engaged in their text. In addition, I was able to incorporate nature into science and math very frequently. In science, students were able to physically seeing the transition of caterpillars to butterflies, worms creating a compost and plants growing to explain concepts they read in their textbook and were required to know for assessment. These authentic experiments that targeted their assessment were able to captivate the interest of the class and allow them to apply their knowledge in future assessment.

Before distributing the MI inventory I had predicted students with IEPs would have very different results than student without IEPs. To my surprise, the students scored very similarly. I presume these results are similar due to age level and cognitive development. One difference I did notice when analyzing my students results in the inventory was the students with IEPs sense of self-identity. While observing student facial expressions and reactions while administering the MI inventory and collecting the data afterward, it was clear to see that students with IEPs were much more sure about their relation to the statement. Students without IEPs were very indecisive and less likely to put a '0' or '5', whereas this was a common response for students with IEPs.

Although the results were very similar, students with IEPs found it more necessary for instructional strategies to target their strength. In addition, students with IEPs responded better to instructional strategies when more of their MIs were targeted. The more modalities through which information was introduced to students with IEPs the easier they were able to exhibit their

understanding. When only one intelligence was addressed within instructional strategies it was difficult for them to comprehend and recall information.

Conclusion

Overall, students' engagement in academic lessons improved when their intellectual strengths were included. Students showed an increase in motivation to complete assignments accurately after being introduced to strategies that targeted their intellectual strengths. In general, students benefited from receiving instruction that was tailored to their strengths. When focusing instruction on students' MIs, they are more easily able to comprehend the information being taught. In conclusion, incorporating multiple intelligences within instructional strategies has a positive effect on students' academic engagement. Further research should focus on a varying classrooms with a diverse range of participants. Studies on individual student's achievement directly correlated to their most prevalent MIs could help solidify these results. In the future, I will continue to consider my students' MIs when planning instruction.

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