

Does Multiple Intelligences Based Instruction Have an Effect on Students' Attitudes & Achievement?

Chapter III Results

Attitude Survey Results

The sample consisted of 45 pre-tests and 43 post-tests. The initial response of students toward the concepts involved in the multiple intelligences was examined with statement numbers one, two, and nine on the introductory survey. Ninety-one percent of the students said that they enjoyed activities that allowed them to be creative, while 60 percent said that they enjoyed activities that allowed them to think in nontraditional ways. Ninety-eight percent agreed that all people learn in different ways (see Appendix A, statement #1, #2, & #9). After learning about the multiple intelligences in class and participating in activities that involved the multiple intelligences, students' attitudes remained consistent. On the closing survey, 88 percent of the students said that they enjoyed activities that allowed them to be creative. Sixty-seven percent said that they enjoyed activities that allowed them to think in nontraditional ways and 100 percent of the students agreed that all people learn in different ways (see Appendix B, statement #1, #2, & #9). (See Figure 3 for a comparison of pre and post-test results for statement #1, #2, & #9)

Statement numbers 11 through 20 on the closing survey determined students' perceptions of the effects of MI based instruction on their learning. The results of this part of the closing survey were very promising. Forty-size percent of the students indicated that understanding the multiple intelligences helped them learn (see Appendix B, statement #12). Sixty-three percent responded that the activities used in class helped them understand the stories they read (see Appendix B, statement #13). Sixty-eight percent disagreed with the negatively worded statement which said that the activities used in class were not useful (see Appendix B, statement #15). Forty percent believed that they would take their understanding of the multiple intelligences into other classes (see Appendix B, statement #17). (See Figure 6 for a complete list of results for statement numbers 11 through 20 on the closing survey.)

Students' attitudes toward school were examined with statement number three. The introductory survey indicated that only about 31 percent of the students surveyed liked school. About 36 percent said that they did not like school, and another 33 percent said that they were not sure if they liked school (see Appendix A, statement #3). This means that approximately 69 percent of the students lacked positive attitudes toward school at the beginning of the study. The closing survey indicated no significant changes in students' attitudes toward school. Thirty percent agreed that they like school, 37 percent weren't sure if they liked school, and 33 percent said that they did not like school. (See Figure 4 for pre and post-test results for statement #3.)

The most significant change in students' attitudes toward school can be seen in the first period class's survey results. On the introductory survey, 42 percent of the first period students agreed that they liked school. Twenty-three percent said they were not sure if they liked school, and 35 percent said they did not like school (see Appendix A, statement #3). On the closing survey, 45 percent of the first hour students responded that they liked school, 32 percent said they were not sure if they liked school, and 23 percent responded that they did not like school (see Appendix B, statement #3). While the number of

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students selecting the "not sure" category increased in size, it is important to note that these figures represent a slight increase in positive attitudes and a 12 percent decrease in negative attitudes. (See Figure 5 for a comparison of pre and post-test results for statement #3 for first period only.)

Students' attitudes toward English class were examined with statement numbers six and ten. The overall attitudes of students toward American Literature did not change significantly from one survey to the next. Thirty-three percent of the students agreed that they liked American literature on the introductory survey, and 35 percent of the students agreed that they liked American Literature on the closing survey (see Appendices A & B, statement #6). Again, the first period class represented the most significant increase in positive attitudes toward English class. Twenty-seven percent of the students in the first period class agreed that they liked American Literature on the introductory survey, while 41 percent agreed that they liked American Literature on the closing survey (see Appendices A & B, statement #6). This is a 14 percent increase in positive attitudes toward American Literature. (See Figure 5 for a pre and post-test comparison of statement #6 and #10 for first period only.)

While students did not overwhelmingly admit to liking American Literature, their attitudes toward reading American Literature did seem to improve. On the introductory survey, 54 percent of the students surveyed said that they always do the assigned reading in English class (see Appendix A, statement #10). On the closing survey, 91 percent of the students agreed that they always do the assigned reading in English class (see Appendix B, statement #10). This is a 37 percent increase in student participation. (See Figure 4 for a comparison of pre and post-test results for statement #6 and #10.)

The final statement on the survey asked students to place a check mark next to the intelligences in which they would like to improve (see Appendix B, statement #21). Out of 43 students, there were a total of 135 intelligences checked. Seven students either left this statement blank or wrote "none" below the statement. Of the 36 student who responded, five selected all of the intelligences, four selected only the two traditional intelligences, and two selected only the logical-mathematical intelligence. The logical-mathematical intelligence was selected most often with 27 students wanting to improve this intelligence. The verbal-linguistic intelligence was chosen by a total of 22 students and the intrapersonal intelligence was chosen by a total of 20 students. The musical and spatial intelligences were chosen least often with a total of 15 students selecting each. (See Figure 7 for a complete list of responses to statement #21.)

Analytical Writing Sample

The sample consisted of 36 pre and post-tests for students in the tenth and eleventh grades. Results of the analytical writing sample (see Appendix C) indicated an improvement in analytical thinking skills following instruction based on the multiple intelligences. On the pre-test, 11 percent of the writing samples were placed in the high category, 47 percent were placed in the middle category, and 42 percent were placed in the low category.

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On the post-test, 22 percent of the analytical writing samples were placed in the high category, 53 percent in the middle category, and 25 percent in the low category. The number of students who wrote compositions using inferential analysis of the poem and who supported their interpretations completely with textual evidence increased by 11 percent. The number of student who wrote compositions using mostly inferential analysis and who supported their interpretations using textual evidence that was not completely explained increased moderately. The most significant change was the decrease in the number of students writing compositions with little or no inferential analysis, little or no textual evidence, and little or no explanation.

This trend indicates that students were beginning to improve after exposure to multiple intelligences based instruction. Overall, post-tests indicated high levels of inferential thought, better use of text in support of ideas, and better explanations. Several students even referred to the novel that they had recently read and discussed. (See Figure 8 for a complete list of analytical writing sample results. See Figures 9 and 10 for a breakdown of analytical writing sample results for first period and for fourth period.)

2nd & 3rd quarter grade comparison results

When grades from the third quarter were compared to grades from the second quarter, there was no significant change in the number of students receiving a letter grade of “B” or higher. A total of 80 percent of the students received grades of either “A” or “B” for the third quarter. There was, however, a 15 percent increase in students receiving grades of “A” for the third quarter. This percentage indicates a shift in the number of students receiving “A” and “B” grades. (See figure 11.)

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Figure 3
Students' Attitudes Toward MI Concepts
(Comparison of Statement Numbers 1, 2, & 9
on Introductory and Closing Surveys)

N = 45 (Pre-Test)

N = 43 (Post-Test)

Statement Numer	Introductory Survey	Closing Survey
	Strongly Agree/Agree	Strongly Agree/Agree
1	91 percent	88 percent
2	60 percent	67 percent
9	98 percent	100 percent

See Appendices A and B.

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Figure 4
Students' Attitudes Toward School & Toward English Class
(Comparison of Statement Numbers 3, 6, & 10
on Introductory and Closing Surveys)

N = 45 (Pre-Test)

N = 43 (Post-Test)

Statement Numer	Strongly Agree/Agree		No Sure		Strongly Disagree/Disagree	
	Pre	Post	Pre	Post	Pre	Post
3	31 percent	30 percent	33 percent	37 percent	36 percent	33 percent
6	33 percent	35 percent	38 percent	30 percent	29 percent	35 percent
10	49 percent	65 percent	22 percent	7 percent	29 percent	28 percent

See Appendices A and B.

Figure 5
Students' Attitudes Toward School & Toward English Class – First Period Only
(Comparison of Statement Numbers 3, 6, & 10
on Introductory and Closing Surveys)

N = 26 (Pre-Test)

N = 22 (Post-Test)

Statement Numer	Strongly Agree/Agree		No Sure		Strongly Disagree/Disagree	
	Pre	Post	Pre	Post	Pre	Post
3	42percent	45 percent	23 percent	32 percent	35 percent	23 percent
6	27 percent	41 percent	42 percent	32 percent	31 percent	27 percent
10	54 percent	91 percent	27 percent	0 percent	19 percent	9 percent

See Appendices A and B.

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Figure 6
Students' Perceptions of the Effects
of the Multiple Intelligences on Their Learning
(Results of Statement Numbers 11 through 20 on Closing Surveys)

N = 43

Statement Numer	Strongly Agree/Agree	Not Sure	Strongly Agree/Agree
11	37 percent	49 percent	14 percent
12	46 percent	42 percent	12 percent
13	63 percent	14 percent	23 percent
14	14 percent	42 percent	44 percent
15	16 percent	16 percent	68 percent
16	21 percent	26 percent	53 percent
17	40 percent	44 percent	16 percent
18	81 percent	14 percent	5 percent
19	72 percent	19 percent	9 percent
20	63 percent	23 percent	14 percent

See Appendix B.

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Figure 7
Intelligences in which Students Would Like to Improve
(Results of Statement Number 21 on Closing Surveys)

N = 135

Intelligences are arranged in order of students' preferences.

Intelligence*	Number of Times Selected	
Logical-Mathematical	27	<ul style="list-style-type: none"> ◆ 7 students chose <i>none</i> of the intelligences ◆ 5 students chose <i>all</i> of the intelligences ◆ 4 students chose <i>only</i> the two traditional intelligences (verbal-linguistic and logical-mathematical) ◆ 2 students chose <i>only</i> logical-mathematical
Verbal Linguistic	22	
Intrapersonal	20	
Interpersonal	19	
Bodily-Kinesthetic	17	
Spatial	15	
Musical	15	

See Appendix B.

*Note: The naturalist intelligence was not included in the results for statement #21 because it was not defined for the students during the MI lesson done at the beginning of the study.

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**Figure 8
Analytical Writing Sample Results**

N = 36

Category	Pre-test		Post-test	
	Number	Percentage	Number	Percentage
High	4	11 percent	8	22 percent
Middle	17	47 percent	19	53 percent
Low	15	42 percent	9	25 percent

See Appendix C for the assignment and Appendices D, E, & F for examples of student compositions in each category.

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**Figure 9
Analytical Writing Sample Results – First Period Only**

N = 20

Category	Pre-test		Post-test	
	Number	Percentage	Number	Percentage
High	3	15 percent	6	30 percent
Middle	10	50 percent	10	50 percent
Low	7	35 percent	4	20 percent

See Appendix C for the assignment and Appendices D, E, & F for examples of student compositions in each category.

**Figure 10
Analytical Writing Sample Results – Fourth Period Only**

N = 16

Category	Pre-test		Post-test	
	Number	Percentage	Number	Percentage
High	1	6 percent	2	13 percent
Middle	7	44 percent	9	56 percent
Low	8	50 percent	5	31 percent

See Appendix C for the assignment and Appendices D, E, & F for examples of student compositions in each category.

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**Figure 11
Comparison of Students' Second and Third Quarter Grades**

N = 36

Category	Second Quarter		Third Quarter	
	Number of Students	Percentage of Students	Number of Students	Percentage of Students
A	10	27 percent	15	42 percent
B	19	53 percent	13	36 percent
C	5	14 percent	1	3 percent
D	1	3 percent	4	11 percent
F	1	3 percent	3	8 percent