RUNNING HEAD: Visual Arts

THE RELATIONSHIP AMONG VISUAL ARTS AND STUDENT ACHIEVEMENT

By

ASHLEY HANEY

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The Educational Leadership Faculty

Northwest Missouri State University Missouri

Department of Educational Leadership

College of Education and Human Services

Maryville, MO 64468

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ABSTRACT

The purpose of this study was to determine the effect of visual fine arts courses and their frequency upon student achievement in the form of individual Grade Point Average. With the passage of the No Child Left Behind Act of 2001, schools are forced to cut funding in subject areas that are not reflected upon during standardized testing experiences. Therefore, many school districts across the United States have eliminated visual arts programs altogether, or have limited student access or time within these classes. Without exposure to the arts, student achievement, self-perception, and confidence are affected. Data was collected from a suburban school district within the state of Missouri regarding 2012 graduates, grade point average, and course selection. Using this data, analyses were completed, including a t-Test, and ANOVA. It was determined that students taking no visual fine arts courses had a mean GPA greater than students participating in visual fine arts courses. While this study demonstrates a significant difference, and the null hypothesis is rejected, the visual arts continue to hold value within the educational system.

Introduction

Background, Issues and Concerns

The fine arts have in recent years, “taken a back seat”, to other courses that are directly aligned with standardized testing scores. With the passage of the No Child Left Behind Act of 2001, high demands have been placed upon schools, districts, and states to meet Adequate Yearly Progress of student achievement. With AYP consistently rising each year, students are expected to develop scores as well. As a result, school districts are faced with budget cuts, rising pressures to increase student achievement, teacher performance examined, and curriculum schedule movements. With all of these pressures mounting, school districts are forced to make decisions regarding the best practices for student learning. Unfortunately, demands focused upon the communication arts and mathematics performance of students has increased the instruction time for student in these subjects, in turn neglecting the arts. While some districts have maintained art programs, some have reduced time spent in the fine and visual arts, and others have discontinued art programs. The discontinuation of these programs may in turn have an effect on student achievement scores, as the arts enhance creativity, practice higher order thinking, and develop the entire individual through brain-based educational experiences. With a narrowed curriculum, fine arts opportunities are given less importance, neglecting the student as a whole.

Practice under Investigation

The practice under investigation through this study is that of the effectiveness of fine arts courses related to student achievement. There was an investigation of student achievement analyzing student participation in visual arts courses, as compared to those students not taking visual arts courses.

School Policy/Practice to be Informed by Study

The policy that was informed by this study is relative to the No Child Left Behind Act of 2001. All schools in the state of Missouri are held to the standard of AYP, Adequate Yearly Progress, each year on MAP, Missouri Assessment Program, standardized testing instruments. If there is a significant difference in the student achievement based upon grade point average of students participating in visual arts courses, and those not electing to participate in visual arts courses, the benefits of the visual arts course elective should be considered as NCLB effects courses that are non-tested subjects.

Conceptual Underpinning

The practice of having students take fine arts courses, specifically that of visual arts can be reflected upon through the theories of educational enthusiasts, Abraham Maslow and Howard Gardner. Theorist, Abraham Maslow, came to the conclusion that some needs have superiority over other needs. Through his research of the person, Maslow created the hierarchy of needs. As a person moves through the hierarchy from physiological needs, to safety and security needs, to the need to feel love and a sense

of belonging, to esteem needs, and finally a person reaches self-actualization. In the final two stages of the hierarchy, a person acquires self-esteem through achievement, fulfills independence, and realizes and seeks potential through personal growth. These stages tend to be very creative stages in which a person fully realizes their potential. After all, Abraham Maslow was once quoted, “A musician must make music, an artist must paint, a poet must write, if he is to be ultimately at peace with himself. What one can be, one must be.” In order for students to become familiar with their full potential, it is necessary to give them an array of experiences, including those of the fine and visual arts.

Howard Gardner, educational theorist, noted for the theory of multiple intelligences, also regards the arts as a regarded form of learning. Within this theory, there are nine intelligences for learning. These intelligences include logical/mathematical, linguistic, bodily/kinesthetic, interpersonal, intrapersonal, naturalistic, existential, musical, and spatial. Gardner stresses that all persons have different cognitive abilities, therefore learning in differentiated methods. As all people acquire knowledge in various ways, in order to provide students with the best possible learning experiences, it is vital to provide students with an array of learning opportunities. Regarding this knowledge, the arts are an integral part of the learning process and well as brain-based educational experiences, aiding students in successful student achievement across disciplines.

Statement of the Problem

In many districts, there is the possibility of removing visual arts courses, as well as all fine arts opportunities, from the curriculum as NCLB laws place high expectations on AYP in tested subject areas. Additionally, there is a general feeling within the field of education regarding the arts as less important to student academic achievement.

Purpose of the Study

The purpose of this study is to determine if there is a correlation between student participation in visual arts classes and student achievement scores among grade point average. The information gained will aid in course selection for students.

Research Questions

RQ#1: Is there a difference in academic achievement scores of students receiving visual art courses and those not taking these classes?

RQ#2: Is there a difference in student achievement based on the number of fine arts courses a student elects to take?

Null Hypotheses

There is no difference in the academic achievement of students receiving visual arts classes and those not taking visual art courses.

There is no difference in the academic achievement of students completing more fine arts courses.

Anticipated Benefits of the Study

The results of this study will inform district administration regarding the relationship of the visual arts program to academic achievement on standardized assessments. If the null hypothesis is rejected, and there is a significant difference, this knowledge could guide decisions regarding course requirements for students. However, if the null hypothesis is not rejected, and there is no significant difference, the value of the visual arts program on student achievement could be evaluated.

Definition of Terms

NCLB: No Child Left Behind Act of 2001; this act was drafted in 2001 and written into law in January of 2002. The act requires that all public schools receiving federal funding administer a standardized testing instrument in which students must meet AYP. Schools that to not demonstrate AYP must take steps to improve the school.

AYP: Adequate Yearly Progress; a measurement defined by the No Child Left Behind Act, and used to hold schools, districts, and states accountable for student achievement. This measure increases each year. The goal is to have all students at the proficient level by the year 2014.

HEARTS: Health, Education, in the Arts, Refining Talented Students; “an after-school fine arts program which taps and develops the talents of African American middle schools at risk of school and social failure” (Respress & Lutfi, 2006 p. 24).

TAKS: Texas Assessments of Knowledge and Skills

SAT: Scholastic Aptitude Test

ACT: American College Test

GPA: Grade Point Average

PCAH: President's Committee on the Arts and Humanities

Summary

A study was conducted to determine if there is a significant difference in student achievement scores in students that participate in visual arts courses and those that do not participate in visual arts courses. This study was conducted as a result of fine arts programs receiving less focus, as a result of the No Child Left behind Act of 2001. The population data analyzed was derived from a suburban school district in central western Missouri. Data regarding standardized test scores for students participating in visual arts programs, and those students not participating in visual arts programs, was analyzed through the computer software, A Statistical Package. The statistical analysis used in correlation with this data was the ANOVA, Analysis of Variance, and the t-Test.

Review of Literature

The fine arts have proven to be an essential part of the education of the whole student. While many studies have been conducted advocating the importance of the fine arts in schools, educational legislation has resulted in many negative short-term effects for fine arts programs in public schools across the nation. With the passing of The No Child Left Behind Act (NCLB) of 2001, on January 8, 2002, many effect and recurrent trends have surfaced in regard to the fine arts, including: budget fluctuations, narrowed curriculum, and neglect for the arts as well as atypical learning styles. In particular, the visual fine arts have been affected in relationship to funding, scheduling, whole student instruction, student achievement, and a widening achievement gap. As NCLB has evolved and fine arts programs have been influenced, research has been conducted and interpreted displaying the correlating relationship between fine arts and student achievement. The effects of these studies display the critical need for educating the whole student in avoidance of "turn(ing) today's short-term effects into tomorrow's long-term problems" (Beveridge, 2010, p. 7).

The No Child Left Behind Act of 2001, while incorporated with the intention of narrowing the achievement gap among students in public schools, has changed the dynamics of arts education within the United States in the last decade. With the passage of NCLB, an abundance of emphasis is placed upon core subject areas and student performance on standardized assessments. With this emphasis, the fine arts do not receive adequate attention. As school districts strive to meet Adequate Yearly Progress, AYP, a measure used to hold schools, districts, and states accountable for

student achievement, federal funding for schools is determined. Subjects evaluated for AYP include reading, writing and math. As schools fail to meet Adequate Yearly Progress benchmarks, plans for remediation are put in place along a probationary timeline before losing federal funding. While districts work toward proficiency, schools are simultaneously faced with budget cuts. As budgets are narrowed in schools, "funding for non-tested subjects are affected first, because the majority of resources are directed at the areas that are tested for accountability" (Beveridge, 2010, p. 4). As visual arts courses would fall into this spectrum, and do not directly affect funding, there is "no incentive to fund them properly" (Beveridge, 2010, p. 4). Funding restrictions take on many forms in various districts including program elimination, less available material, and loss of teaching positions. All of these forms of budget restriction effect students.

As budgets are taken into consideration, the curriculum for students becomes increasingly narrowed which effects student achievement. Many school districts across the country are no longer offering visual arts programs, or have drastically limited arts courses availability, in order to provide priority for subjects that are tested. It has been found that since the passage of NCLB in 2002, instructional time for tested subjects has been increased while elective course offering time had decreased (Beveridge, 2010). Further, it has become popular practice to have struggling students in upper grade levels replace elective courses with remedial courses to raise scores in core assessed subject areas. As a result, students are revoked of their "outlet for creative expression" (Beveridge, 2010). If students are forced out of elective courses to take part in additional remedial coursework, self-concept, confidence, and interest in school could

be additionally lost. As students begin losing their view of self and interest in school, achievement will be adversely effected.

Students that are displaced from creative courses, and enrolled in additional remedial coursework, may experience enrichment. However, the message communicated to students regarding fine arts courses is one of less importance, not requiring skill or knowledge (Beveridge, 2010). Correspondingly, fine arts courses having a regard for being the “fun” course, undermining the art educator as a menial addition to students’ educations, while educators of “core” subjects are more essential to student life success. Without fine arts courses, whether they be visual fine arts, musical fine arts, or even the performing arts, students are being trained for only the business world. In reality, fine arts courses communicate to students the need for well-rounded individuals. While reading and math skills are highly important to success, creativity and the problem solving used in artistic courses will additionally aid students to be affluent members of society. Therefore, marginalizing coursework that could support reading and math development will only hinder whole student development.

In addition to the scheduling and funding effects of NCLB, neglecting the fine arts additionally abandons the importance of the multiple intelligences to student achievement. While it is known that students learn in a variety of ways, as presented by Howard Gardner, educational opportunities should be vast for students to acquire knowledge needed for success. With the eight intelligences, including: Linguistic, Logical Mathematical, Spatial, Bodily-Kinesthetic, Musical, Interpersonal, Intrapersonal and Natural, educators should provide students with many opportunities to acquire information in a way that is meaningful for them. With the dwindling of arts programs,

schools are focusing more heavily on the linguistic and mathematical-logical intelligences, leaving six other important means of educational communication behind, as well as all the students that show mastery in those intelligences. Research has shown that informational retention is acquired more by students that 'practice by doing' or 'teach others', rather than 'lecturing, reading, discussion, audio-visual, or demonstration'. With this knowledge, incorporating the visual arts that encompass most of its time 'practicing by doing', relating to 75% of learners is incredibly important to student success. (Daniel, 2010)

As fine arts courses are receiving less attention as result of NCLB and high stakes testing, educating the whole student becomes increasingly difficult. Providing fine arts options to students gives them "the opportunity to express their creativity and to learn critical-thinking, problem-solving, and innovation skills" (Sloan, 2009, p. 3). Giving students the opportunity to learn in other subject areas, can often lead to improved cognition (Sloan, 2009). In order to continue giving students fine arts opportunities, many districts strive to hire educators that are trained in reading and math integration for the fine arts classrooms. In striving to teach whole student instruction, it is important to be aware of brain-based education. It has been discovered through research that the left and right hemispheres of the brain must work together to maximize learning, and "one of the long held means of achieving whole brain instruction in schools has been the fine arts" (Respress & Lutfi, 2006, p. 26). This could be a result of the human brain having a visual cortex that is five times larger than the auditory cortex, making visual instruction very important for students (Respress & Lutfi, 2006). Abraham Maslow has been quoted, "the arts are far closer to the core of education than are the more exalted

subjects" (Education Today, 2004, p.18). Visual arts can "enhance cognition, emotional expression, perception, cultural awareness and aesthetics". (Education Today, 2004, p.18) While students participate in arts experiences, they are required to use high level thinking and as a result, "visual arts have been shown on many occasions to improve reading and math scores" (Education Today, 2004 p.18).

Through research studies including the HEARTS Project, and A+ Schools, as well as recent research provided by the President's Committee on the Arts and Humanities, and the Missouri Arts Council, it has been found that students have flourished academically, as well as behaviorally, with the exposure to fine arts as compared to their counterparts that did not experience exposure to fine arts in the school setting. Research supports in addition to supporting cognitive development, the fine arts furthermore reduce delinquent behavior and improve self-esteem, supporting whole student development (Respress & Lutfi, 2006).

The focus of the A+ Schools program is daily arts instruction along with interdisciplinary instruction, giving students an array of opportunities to acquire and solidify information. A+ Schools, first established in North Carolina, have a philosophy of supporting and enriching the whole student while "support(ing) the natural ways that children learn" (Education Today, 2004, p.18). In connection with the A+ Schools Program, the Alabama Institute for Education in the Arts has similar goals, and provides professional development to schools throughout the state of Alabama. The Executive Director of the Alabama Institute for Education in the Arts stated, "statistical research ([by] Americans for the Arts) indicates young people who participate in the arts are four times more likely to be recognized for academic achievement, perform community

service, participate in math and science fairs, and win writing awards, and three times more likely to win school attendance awards" (Education Today, 2004).

Similarly, the HEARTS Project, the Health, Education, in the Arts, Refining Talented Students Family Life Center, and students have become less violent, as well as demonstrated "statistically significant improvements [were] made in self-esteem, school achievement, and grade point averages" (Respress & Lutfi, 2006, p. 24). It has been discovered that 57% of students participating in the HEARTS Project, experience a ".5 increase in GPA compared to 11% of the comparison group" (Respress & Lutfi, 2006, p.28). As fine arts require higher order thinking and demonstrate relationships with whole brain learning theory, this type of learning not only requires performance but creative actions to be taken by students. These modes of learning, incorporating the fine arts, go beyond many measures of understanding used in traditional classrooms, and have had a positive impact on academic achievement and violence prevention.

In studies comparing control groups to students exposed to arts education, results support fine arts integration. In one study involving ninety-five students, after seven months in classes exposed to the arts, students averaged seventy-seven percent on exams within reading and math, where students without arts exposure averaged fifty-five percent (Education Today, 2004). Further, in an additional study, students from eight high schools students were surveyed regarding their feelings about arts education. Overwhelmingly, students communicated that they were experiencing more self-confidence, better time management, discipline, supported problem solving skills, more engagement and will to succeed, and better grades. In addition, twelve out of sixteen students reported that they had experienced academic gains from participation in fine

arts courses throughout their high school careers. One student even commented, “It’s like the arts and the academics complement each other.” (Allen, Edmonson & Fisher, 2008, p. 43). In addition to student opinion and perception, in seven out of eight campuses studied, the average scores of arts participating students were higher than those of students not taking fine arts courses on the TAKS, SAT, and ACT exams. (Allen, Edmonson & Fisher, 2008).

In a report summarizing the President’s Committee on the Arts and Humanities, it was found that there are large challenges facing United States Public Schools. With a dropout rate reading 50% in some demographics, a narrowed curriculum as a result of focused standardized testing, and a widening achievement gap, research was sought and recommendations for arts integration were proposed to aid in student engagement and achievement. Within studies using large sample sizes, collected in the late 1990s, it was found that “low income kids who participated in arts education were four more times likely to have high academic achievement and three times more likely to have high attendance than those who didn’t” (Dwyer & PCAH, 2011, p. 2). Additionally, students that received arts education as a student were more likely to attend college, have successful careers, and voluntarily contribute to society. In fact, “arts-engaged low-income students tend to perform more like higher-income students” (Dwyer & PCAH, 2011, p. 2). While this study presents information regarding arts participants, brain research has also been presented within the summary and recommendations from the PCAH. It has been found that children participating in arts programs demonstrate more improved attention skills and general intelligence leading to improvement in other cognitive areas of development. Furthermore, the use of the arts in instructional

delivery uses multiple senses in regard to information, therefore having a better tendency to be stored among long-term memory as compared to short-term memory. (Dwyer & PCAH, 2011)

Finally, within the state of Missouri, the Missouri Arts Council, has found that higher arts participation results in higher Communication Arts and Math scores on standardized assessments. Additionally, it has been reported by the Council that the more arts classes students are enrolled in, the lower the amount of infractions that require removal from the classroom, higher attendance rates, and a positive correlation between graduation rates and arts participation. Therefore, it has been concluded by the council that, " While we can't claim that participation in fine arts courses causes higher academic achievement, study results definitely suggest that opportunities for fine arts education in Missouri schools should be increased or, at the very least, maintained" (Scheuler, 2010, p. 3). In addition, the council has recommended that the arts are recognized along with math, reading and writing to be a core component of academic curriculums, and funding for the arts should be maintained (Scheuler, 2010).

Not only does research support the inclusion of the fine arts in the classroom, students believe "drawing compliments the writing and thinking process by enabling them to clarify their ideas and improve their comprehension" (Education Today, 2004, p.18). The arts are among the greatest expressions of culture, especially in a visually oriented society, as students are trained in the fine arts along with core subjects, they learn to speak a universal language while achieving a well-rounded successful education. With the demands of NCLB, school districts strive to maximize student achievement while meeting AYP, losing the opportunity to communicate universally

through visual means. As AYP threatens school districts, the result remains, fewer resources available and shrinking budgets, and school districts have in turn narrowed the curriculum, sometimes leaving behind fine arts opportunities and instruction. While some districts have sought to cut arts programs from schools, in order to provide students with more content instruction in preparation for state assessments, it has also been discovered that arts education participation can boost student achievement in other areas of education. High-stakes testing experiences unfortunately "force many school systems to overlook the importance of art on the learning experience". (Miller & Hopper, 2010, p. 6). Therefore educators are seeing the value of beginning to integrate the arts into content instruction. Additionally, it has become approved practice to hire teachers with the knowledge to incorporate reading and math integration along with the fine arts.

Finally, while schools, districts, and states fight budget restrictions and high stakes testing related to the No Child Left Behind Act, it is important to remember that "students who participate in the fine arts tend to experience greater academic achievement and are less likely to have social, emotional, or behavioral problems" (Respress & Lutfi, 2006, p. 24). Research has demonstrated that this view has been proven in study after study, as the arts support academic achievement along with being success motivators for students. Therefore it is essential to provide them with a balanced curriculum. If education continues to neglect the arts, we risk "losing the brightest and most creative and critical thinking students" (Landsman, 2011, p. 129). While it is an expectation that the achievement gap begins to close instead of following a continuous widening trend, this task can be better served by providing students with

arts opportunities to further solidify learning in core subject areas by enriching the curriculum rather than narrowing it (Miller & Hopper, 2010). After all, “The Arts are essential parts of the human experience, they are not a frill.” – U.S. Department of Education (Landsman, 2002, p. 127)

Research Methods

Research Design:

A quantitative analysis was conducted using grade point average scores from high school students. The independent variable in this analysis was students as either a visual arts student, or not a visual arts student, along with the categorical data regarding how many fine arts courses taken. The dependent variable tested was standardized test scores.

Study Group Description:

The group studied included students at the high school level in a suburban school district within the state of Missouri. Randomly selected data scores for students were also derived from the high school level. Within the school district sampled, between the years of 2000 and 2010, there was a 14.7% increase in population growth, totaling 62,261 people within the district boundaries. Within this total population, school enrollment during the 2011-2012 year totaled approximately 10,299 students. The enrollment of high school students totaled 3,317. The population comprising this school district included a diversity of students. This diversity consists of students of Caucasian, African American, Hispanic, Asian, Native American, Pacific Islander, and Multi-racial ethnicities. The greatest amount of students 71.7%, are of Caucasian descent, followed by African American and Hispanic students. In current years, the growth of diverse groups has shown reduction in the enrollment of Caucasian students, and growth in all other ethnic categories.

Data Collection and Instrumentation:

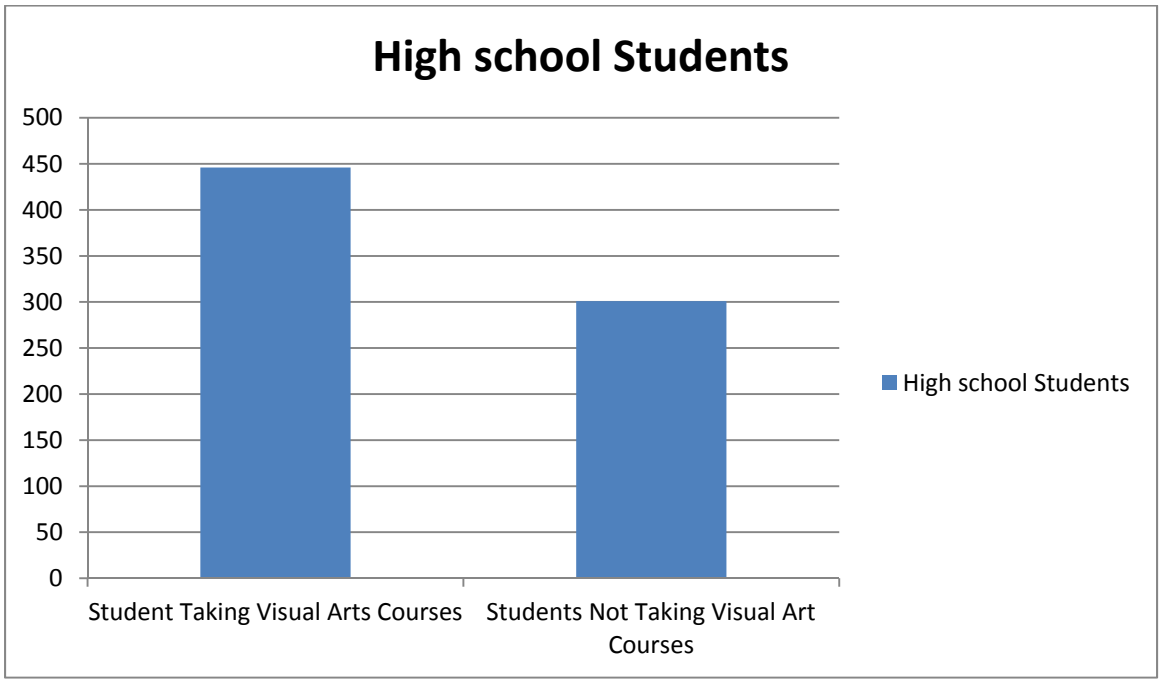
Data collection was composed through quantitative methods. Additional data collection took place through the District Central Office. Data collected included student grade point average, as well as visual art student standing and amount of art classes. Data was placed into an Excel spreadsheet and recoded in numeral form as statistical analyses were to be completed.

Statistical Analysis Methods:

Using the software package, A Statistical Package, statistical analyses were completed. Tests conducted using quantitative data included a t-test Analysis, and an ANOVA.

Findings

Using the statistical software, A Statistical Package, data was used to compare school district student achievement with conceptual underpinning theories. Of the scores provided regarding 2012 graduates using a bar graph it was determined that given the high school population data, there were 301graduates that did not take visual fine arts courses throughout their high school experience. There were 446 graduates that did participate in visual fine arts courses. The visual fine arts students participated in a range of one to seven visual arts courses. Within this population groups, student grade point averages were compared in determining if a difference between student achievement and visual fine arts courses is present.



While it is known that fine arts courses support student higher level thinking and creativity, it has been found, using data compiled from one Missouri suburban school district, that there is a significant difference in student achievement between students in

visual fine arts courses, and students that do not participate in visual fine arts courses. In the table below, the data supporting the difference in student achievement is noted.

t-Test Analysis Results for Students with Fine Arts Courses

and

Students Without Visual Fine Arts Courses

Source	Mean	Mean D	*t*-test	df	*p*-value
No Visual Arts	2.99				
Visual Arts	2.86	0.13	2.66	745	0.008

Note: Significant when p<=0.25

As the means are compared, students with no visual arts courses had a mean average GPA of 2.99. Students taking visual arts courses had a mean GPA of 2.86. The mean difference among these two groups was 0.13, indicating a significant difference. Further, the t-test findings were 2.66. The degrees of freedom were found to be 745. The p-value of the t-test was 0.008, well below the Alpha Level of 0.25.

Summary of ANOVA Test of Significance Results for Visual Arts Courses

Source	*SS*	*df*	*MS*	*F*	*p-value*
GPA	8.38	7	1.20		
CLASSES	338.56	739	0.46	*2.61*	*0.011*

Note: Significance = < 0.25

The above table is descriptive of the summary of the ANOVA Test, Analysis of Variance, displaying significant results in the difference of amount of visual arts courses, ranging from zero to seven, and grade point average. In the One-Way ANOVA test, the dependent variable, Grade Point Average, displays a sum of squares of 8.38. The degrees of freedom for this variable were 7, and the mean square was 1.20. The independent variable, Amount of Visual Arts Courses, had a sum of squres of 338.56. This variable had 739 degrees of freedom and 0.46 as the mean squre. This Fisher Radio for this variable was 2.61. Finally, the p-value was 0.011. The p-value was less than the alpha level of 0.25. As a result, the null hypothesis was rejected, and a post-hoc pairwise comparison analysis was completed to determine where differences were found. The information can be found in the table below.

ANOVA Pairwise Comparison Analysis

Comparison Group	p-value	Difference
1 vs. 2	0.044	Significant Difference
1 vs. 3	0.005	Significant Difference
1 vs. 4	0.698	NO Difference
1 vs. 5	0.088	Significant Difference
1 vs. 6	0.636	NO Difference
1 vs. 7	0.639	NO Difference
1 vs. 8	0.231	Significant Difference
2 vs. 3	0.041	Significant Difference
2 vs. 4	0.181	Significant Difference
2 vs. 5	0.283	NO Difference
2 vs. 6	0.887	NO Difference
2 vs. 7	0.338	NO Difference
2 vs. 8	0.173	Significant Difference
3 vs. 4	0.014	Significant Difference
3 vs. 5	0.882	NO Difference
3 vs. 6	0.737	NO Difference
3 vs. 7	0.104	Significant Difference
3 vs. 8	0.109	Significant Difference
4 vs. 5	0.091	Significant Difference
4 vs. 6	0.561	NO Difference
4 vs. 7	0.806	NO Difference
4 vs. 8	0.264	NO Difference
5 vs. 6	0.705	NO Difference
5 vs. 7	0.148	Significant Difference
5 vs. 8	0.110	Significant Difference
6 vs. 7	0.509	NO Difference
6 vs. 8	0.198	Significant Difference
7 vs. 8	0.323	Significant Difference

In evaluation of the post-hoc pairwise comparison data. It can be determined that there is not a significant difference between student Grade Point Averages among some groups of students taking a particular number of visual arts courses, while there are some groups of students taking a particular number of visual arts courses that do demonstrate a significant difference. For example, among groups one and two, students with no arts courses, and students taking one visual arts course, there is a

significant difference, as well as between groups one and three, one and five, and one and eight. Group one is comprised of students that did not take any visual arts courses throughout their high school experience, and each group thereafter is made up of students taking one or more visual arts courses. The following pairs displayed a significant difference: 1 vs. 2; 1 vs.3; 1 vs. 5; 1 vs. 8; 2 vs. 3; 2 vs. 4; 2 vs. 8; 3 vs. 4; 3 vs. 7; 3 vs. 8; 4 vs. 5; 5 vs. 7; 5 vs. 8; 6 vs. 8; 7 vs. 8. However, there was no significant difference among the following pairs: 1 vs. 4; 1 vs. 6; 1 vs. 7; 2 vs. 5; 2 vs. 6; 2 vs. 7; 3 vss. 5; 3 vs. 6; 4 vs. 6; 4 vs. 7; 4 vs. 8; 5 vs. 6; 6 vs. 7.

Conclusions and Recommendations

In evaluating the data presented within the tables in the research finding portion, within the t-Test analysis, it was found that there is a significant difference between the academic achievement of students receiving visual arts classes and those not taking visual art courses; therefore, the null hypothesis, stating, there is no difference in the academic achievement of students receiving visual arts classes and those not taking visual arts classes, is rejected. Students with no visual arts courses achieved significantly higher GPA's than those students taking visual arts courses.

In regard to the One-Way ANOVA analysis, the p-value was less than the alpha level of 0.25. Therefore the null hypothesis was rejected. There is a significant difference between student achievements of students taking more visual arts courses, as compared to those not taking visual arts courses throughout their high school career. These significant differences between number of fine arts courses and grade point average are an interesting view of data. However, given the pairwise comparisons table, it has been found that there are differences among students with varying arts courses. While there is no significant difference between groups one and four, one and six and one and seven, there are differences between groups one and two, three, five, and eight. This significant difference suggests that students exposed to visual fine arts as occasional supplemental instruction achieve greater grade point averages. Therefore, students with one to two experiences with fine arts typically demonstrate greater student achievement than those students not exposed to visual fine arts courses.

In comparing the conceptual underpinning to the finding section, it is believed that it is necessary to provide students with an array of experiences in support of student development. Additionally, the multiple intelligences theory supporting students with various cognitive abilities and learning methods, are supported through data derived from the ANOVA pairwise comparison, as it demonstrates significant differences between some groups of students. This significant difference supports the belief that arts integration does in fact aid in student achievement across disciplines. The data findings that support this belief are found in the following pairwise comparisons: 1 vs. 2; 1 vs.3; 1 vs. 5; 1 vs. 8; 2 vs. 3; 2 vs. 4; 2 vs. 8; 3 vs. 4; 3 vs. 7; 3 vs. 8; 4 vs. 5; 5 vs. 7; 5 vs. 8; 6 vs. 8; 7 vs. 8. Specifically, the findings between groups 1 vs. 2, and 1 vs. 3 are specifically interesting to note. These significant differences are found between group one, students with no visual fine arts courses, and students taking one or two visual fine arts courses. Therefore, these finding support that the visual arts are an integral part of the learning process across disciplines.

While there were findings to support the continued inclusion of visual fine arts classes at the high school level, the findings given the t-test, and other data presented within the ANOVA pairwise comparison table demonstrate data that does not fully support the beliefs stated above. As presented in the t-Test data findings, students with no visual arts courses at all were compared with students taking visual arts courses. As an entire group, students with no visual arts courses had a significantly higher mean grade point average than those students taking visual arts courses throughout their high school experience. In addition, the following comparisons to not demonstrate a significant difference as presented using the post-hoc pairwise comparison: 1 vs. 4; 1

vs. 6; 1 vs. 7; 2 vs. 5; 2 vs. 6; 2 vs. 7; 3 vss. 5; 3 vs. 6; 4 vs. 6; 4 vs. 7; 4 vs. 8; 5 vs. 6; 6 vs. 7.

Perhaps it is necessary to conduct more research in this area to determine the best arts courses for supplementing general education courses and supporting cross-curricular educational learning. While these findings do not directly support the conceptual underpinning of visual arts courses aiding student achievement, further research must be conducted to study this subject in more detail. Additionally, studying various groups of schools in many demographic areas would communicate a better overall impact of the fine arts on student achievement. In addition, in preserving the fine arts in schools, greater research should be conducted regarding equipping art educators with the tools needed to enrich other disciplines. If art educators are aware of incorporation of skills from other disciplines into artwork, student achievement would be supported further through the arts. In addition, replication of this study with additional graduating classes is recommended for a more thorough understanding of the impacts of arts education upon student achievement. Finally, long term research regarding the No Child Left Behind act should be conducted and evaluated to determine the effects of this legislation in the long term on visual fine arts programs throughout educational settings nationwide.

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