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Arts Integration and Student Achievement

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by
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Abstract

This is a quantitative cross sectional survey design dual method study to test a theory that relates arts integration to achievement for students in grades two through six at three arts magnet schools and five non-arts schools in two school districts in Minnesota. Demographic groups studied included special education, ethnicity, socioeconomic status (FR), Limited English Proficiency (LEP), gender, and gifted. The dual design method included the use of cross tabulations, chi-square tests, MAP RIT results, and teacher practice survey responses to find relationships. Oreck's (2000) Teaching with the Arts Survey (TWAS) was examined and used as a resource to develop survey questions appropriate for this study. No complete questions were used. However, in some cases there are similarities. Permission to use the TWAS survey for the purpose of this research study was granted July 29, 2011 from Barry Oreck, writer of the survey document, through an e-mail communication. This study found a relationship between achievement and arts integration (question one). This study also found a relationship across demographic groups (question two). The study also found that both teachers in the arts and non-arts schools used arts practices. Given this, perhaps whether or not a student showed growth was dependent on whether or not the teacher used arts practices.

Dedication

To my family Jim, Stacy, John, Riley, Jack, Julia, Amber, Ryan, Ashtyn, Austyn, and Karly for understanding the time commitment needed to complete this project.

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Chapter I: Introduction

Introduction to the Problem

The purpose of this quantitative, cross sectional, survey design, and dual method study was to test a theory that related arts integration to achievement. The study examined the relationship between teacher practice and student performance across multiple demographic groups in order to determine if a relationship existed between teacher practice, student engagement, and achievement in reading. In addition, it was hoped the study would provide evidence that arts practices should be considered when selecting interventions to close the achievement gap. Chapter I was designed to introduce the study, state the problem of the study, and state the significance of the study.

Background of the Problem

The Federal No Child Left Behind Public Law 107-110 passed on January 8, 2002 has caused many school leaders today to refocus efforts on those strategies and practices that have the promise of increasing student achievement in the areas of mathematics and reading. Consequently, this has increased the interest by school leaders to deliver rigorous outcome based programs that can be assessed using scientific measures (Eisner, 2004). Nevertheless, even with this focus on finding researched based best practice methods and implementing high quality programs the achievement gap continues to widen (Growe & Montgomery, 2003).

In order to fully address the achievement problems today we must consider other possibilities. One such method to pursue is arts integration. Arts integration, as an approach to learning, has been greatly overlooked and yet has potential in closing the

achievement gap (Smithrim & Upitis, 2005). Researchers have found significant differences in the achievement level of students who are highly involved in the arts across demographic groups (Catterall, Chapleau, & Iwanaga 1999b). Further, Catterall (as cited in Fiske, 1999) indicated students in arts rich environments outperform those students in arts poor environments in almost every measure. Given this information, more must be done to link arts integration to student achievement using scientific measures if the arts are to be seen as a credible intervention in this time of high accountability.

Statement of the Problem

A focus on testing and accountability has limited the focus on arts experiences for students. This trend to view education as a science has had a negative impact on the engagement of some students (Eisner, 2004). As a result, teachers spend more time on teaching to a test than spending time on what strategies engage students in the learning. In other words, teachers may spend more time testing and teaching to the test and less time on learning, which has adverse effects on students. Eisner (2004) suggested this manufacturing era thinking limited opportunities provided for students. This Industrial age thinking is in direct conflict with Dewey (as cited in Eisner, 2004) who argued that while science articulates meaning the arts express meaning. It is this opportunity to express meaning that highly motivates and engages students in the learning process. One education initiative that is gaining strength is STEAM, which is a combination of science, technology, engineering, arts, and math. In order for school leaders to see the arts as a science further research must be done to link quantitative research with arts integration and student achievement, which is presented in this study.

Purpose of the Study

The purpose of this quantitative, cross sectional, survey design, and dual method study was to test a theory that related arts integration to achievement for students in grades two through six at three arts magnet schools and five non-arts schools in School District S and School District T in Minnesota.

Independent Variable

There are 10 independent variables: One independent variable with nine additional independent variable groups. One independent variable represents arts integration. Arts integration is defined as a method of teaching using arts activities from the visual, performing, literary, and technical arts areas within the regular curriculum. Nine additional independent variables represent demographic groups such as: gender, limited English proficiency (LEP), primary disability status (special education), White, Black, Hispanic, Asian/Pacific Islander, free and reduced lunch status, and gifted. They are each nominal with two categories.

Dependent Variable

The dependent variable is achievement. Achievement is defined as growth in reading based on the fall 2010 to fall 2011 Measures of Academic Progress (MAP) RIT (Rasch Unit) Growth in Reading.

Rationale

Closing the achievement gap is of primary importance in the education field today. How to accomplish this is on the minds of most administrators. While rigorous curriculum and teaching to standards is critical, achievement for all students has

continued to be problematic. As a result, other areas must be explored. Arts integration may be one way to increase student engagement and close the achievement gap for students who have not shown growth with other methods and practices. Consequently, this study explored the relationships between arts integration and achievement in arts and non-arts schools.

Research Questions

1. What is the relationship between arts integration and achievement?
2. What are the differences in demographic factors and student reading growth?

Hypotheses

Null Hypotheses

H1o: There is no relationship between arts integration and student achievement.

H2o: There is no significant difference between special education students at the arts magnet schools and special education students at the non-arts schools on reading growth.

H3o: There is no significant difference based on ethnicity at the arts magnet schools and ethnicity at the non-arts schools on reading growth.

H4o: There is no significant difference based on socioeconomic status at the arts magnet schools and socioeconomic status at the non-arts schools on reading growth.

H5o: There is no significant difference based on limited English proficiency at the arts magnet schools and limited English proficiency at the non-arts schools on reading growth.

H6o: There is no significant difference based on gender at the arts magnet schools and gender at the non-arts schools on reading growth.

H7o: There is no significant difference based on gifted at the arts magnet schools and gifted at the non-arts schools on reading growth.

Alternative (1) & Alternative Non-Directional (2-7) Hypotheses

H1ı There is a relationship between arts integration and achievement.

H2ı There is a significant difference between special education students at the arts magnet schools and special education students at the non-arts schools on reading growth.

H3ı There is a significant difference based on ethnicity at the arts magnet schools and ethnicity at the non-arts schools on reading growth.

H4ı There is a significant difference based on socioeconomic status at the arts magnet schools and socioeconomic status at the non-arts schools on reading growth.

H5ı There is a significant difference based on limited English proficiency at the arts magnet school and limited English proficiency at the non-arts magnet school on reading growth.

H6ı There is a significant difference based on gender at the arts magnet schools and gender at the non-arts schools on reading growth.

H7ı There is a significant difference based on gifted at the arts magnet schools and gifted at the non-arts schools on reading growth.

Significance of the Study

The advancement of the arts in schools today is a critical topic requiring further exploration. Uncovering the relationship between *No Child Left Behind* accountability

measures and the acceptance of arts education as a solution to closing the achievement gap with all learners is paramount. Researchers such as Smithrim and Upitis (2005) cautioned that if we make too many connections between arts learning and student achievement with little empirical data the arts may become devalued and vulnerable. The need for quantitative evidence is crucial to advance the belief that arts experiences engage students, which results in increased achievement. Consequently, there is hope that through further quantitative research the arts will be viewed as an integral component to increasing student achievement (Smithrim & Upitis, 2005).

Much of the current research connecting arts integration to achievement is rooted in qualitative research, which can be perceived by some to be subjective in nature. Standardization of curriculum, accountability, and learning outcomes have changed how schools do business and put a great emphasis on test scores in the areas of reading and mathematics. As a result, school boards have been forced to look at funding programs through the lens of accountability and legislative mandates, which has caused some to narrow practices used – using standard measures (Gainer, 2010).

Preparing students for the future requires visionary thinking. A change must be made from preparing students for high-stakes testing at a basic level to preparing students for innovative thinking at a high level (Mendoza, 2006). Not only is the current educational model creating larger gaps in achievement with students at-risk of learning, but gaps are also widening with students who are at the gifted level as well (Mendoza, 2006). Researchers indicate that arts programming has a positive impact on high potential students too (Respress & Lutfi, 2006). It is school districts that understand the role of arts

in learning that will advance at the greatest level and prepare students for work in the 21st century.

This study is significant, because most school leaders today are seeking strategies to insure that all students achieve success in school. While there is a great body of research to indicate arts education may be an area to pursue, educators are cautious to fund additional arts programs due to public and professional perceptions of the role of arts in achievement. However, there appears to be a movement by some in the business community to link creative thinking to innovative product discovery in the future. One education initiative that is gaining strength is STEAM, which is a combination of science, technology, engineering, arts, and math.

As this movement unfolds, schools will need to be ready to address an increase interest by the public in creating and developing students who can think at the level needed as we advance in the 21st century. Creative thinking will be needed in the future as new innovations are created and discovered (Giguere, 2005). It will be schools that produce the thinkers needed for the challenges that lie ahead that will be the most competitive in the educational marketplace.

Evidence indicates that creative problem solving is not associated with areas of the arts only, but is present in all facets of learning (Giguere, 2005). This implies that students who think creatively can transfer this thought process to academics as well (Giguere, 2005). The idea of linking art to learning and thinking is not new (Giguere, 2005). "Landmark educator John Dewey in his 1958 text *Art as Experience* characterizes art as a mode of symbolic thinking, which emanates naturally from our experiences in the world" (p. 37). It is this symbolic representation that creates the dynamic learning

potential for students. These symbols are present naturally and are foundational in science as well as in the arts. It is with this understanding that researchers such as Dewey indicate that any practice can be an art (Eisner, 2004).

It is clear, that additional research must be done to authentically connect arts education to achievement using quantitative measures. Current research indicates student involvement in the arts has no negative impact on achievement in mathematics or reading. In other words, the arts are not taking time away from core subjects but have the potential to enhance learning across the content areas (Smithrim & Upitis, 2005). Oreck, Baum, and McCartney (1999) suggested there are strong links between student interest in the arts at the elementary level and future academic success in middle and high school. Critical to this understanding is the belief that one intervention, method, or practice, such as arts integration, has the potential to impact future success at the level mentioned. If this is possible and the arts positively impact student achievement over time, then it is critical to continue to research the topic using quantitative measures.

This study will contribute quantitative research to the discussion of arts integration. It will bring past research and current research together in an attempt to provide numerical evidence that there is a link between achievement and arts integration. If this can be accomplished the hope is for school leaders to consider arts integration as a response to closing the achievement gap for all students.

Definition of Terms

Achievement. Growth in reading.

Arts Integration. Using arts methods and practices to enhance learning across curricular areas.

Arts Magnet School. A school that has an "Arts" focus and teachers integrate the arts across curricular areas as a method of teaching and learning.

Bivariate Analysis. A relationship between two variables (Muijs, 2008).

Count. "Actual count" (Muijs, 2008, p. 120).

Cross Tabulation. A statistical method to compare two nominal variables (Muijs, 2008).

Demographic Groups. The various populations in the study.

Effect Size. "A measure of the strength of our difference or relationship that we can then compare with results from other studies" (Muijs, 2008, p. 81).

Expected Count. "Expected number of responses in each cell if there was no relationship" (Muijs, 2008, p. 120).

Growth. Student Fall 2010 to Fall 2011 Measures of Academic Progress (MAP) Reading RIT (Rasch Unit) growth data.

Measures of Academic Progress.

> Measures of Academic Progress (MAP) is a series of tests that measure students' general knowledge in reading, math, and science through a state-aligned computerized test. MAP tests are adaptive tests that assess the instructional level and growth of each student. (Anoka Hennepin District 11, 2015, RET Department)

No. Represents students who showed no growth and teachers who had not worked in an arts magnet school for at least two continuous years.

Non-Arts School. A school where classroom teachers do not integrate the arts across curricular areas as a method of teaching and learning.

Pearson Chi Square Test. A statistical test that tests the hypothesis that row and column variables are independent or unrelated to one another. To show a significant relationship has occurred the p-value must be as small as possible or between .05-.01 (Muijs, 2008).

Rasch Unit. Indicates the students instructional level (RIT) ((Anoka Hennepin District 11, 2015).

Significance Level. Significance level or probability value will tell whether or not the relationship or difference found is statistically significant. Significant level or p-value .05 -.01(Muijs, 2008).

Statistical Package for the Social Science (SPSS). Statistical data analysis software (Muijs, 2008).

Yes. Represents students who showed growth and teachers who worked in an arts magnet school for at least two continuous years.

Assumptions and Limitations

It was assumed that teachers in the non-arts schools would show no engagement in arts integration practices or very low engagement in arts integration practices. It was also assumed the time needed to request and receive data from school district personnel would be short.

This study was limited to School District S and School District T in Minnesota. It was assumed the return rates would limit the number of the teacher questionnaires received. It was also assumed these limitations would impact study results.

Further, this study was limited by defining growth as the comparison of two MAP RIT scores rather than the degree of growth made. The timeline for receiving the data appeared to be appropriate. However, the data may have been received within or outside the expected timeline.

Nature of the Study

This study examined the relationship between arts integration and achievement in reading. There were two areas of focus: to see if there was a relationship between the use of arts practices and student achievement in reading and to see if there was a difference in arts and non-arts schools proficiency in reading across demographic groups. The MAP RIT score fall 2010 and fall 2011 was used to determine student growth. The teacher questionnaire was used to provide evidence of teacher arts practices. Together the data was used to conduct a series of cross tabulations and chi square tests to test the relationship between teacher practice and growth in arts and non-arts schools.

This was a non-probability purposive sample method therefore this survey study was not meant to make a generalization but to generate information for future study on the topic.

Organization of the Remainder of the Study

This study continues with a (Chapter II) Literature Review, (Chapter III) Methodology, (Chapter IV) Results, and (Chapter V) Discussion, Implications, and Recommendations. The literature review provides background information related to the importance of the arts integration topic. The methodology outlines the process and or methods selected to collect and analyze data. The results show the data collected using various tables, figures and narrative representations. The discussion, implications, and recommendations discuss the data presented, the implications of the findings, and the recommendations for future studies.

Chapter II: Literature Review

At no other time in the field of education has achievement meant so much. The federal *No Child Left Behind* legislation 107-110 passed on January 8, 2002 has mandated that every child reach proficiency within a given period of time. This focus on data for the purpose of accountability has changed the ways school do business on a regular basis (Smilan, 2010). Consequently, school leaders across the nation are seeking ways to accomplish the great task of increasing student achievement. An arts integration approach may be one method that has potential and needs further exploration (Smithrim & Upitis, 2005). No longer should the arts be considered an extra in relation to mathematics, reading, science and other content areas (Oreck, 2002).

This focus on accountability is not a new one and has roots in the 19th century when education was becoming a Field of Study and receiving guidance from leaders in the Field of Psychology such as Edward Thorndike and John Dewey (Eisner, 2004). It is this early connection between Psychology and Science that influenced the education movement in the 19th century and continues to influence education today (Eisner, 2004). At the time, Thorndike believed that if schools were to become more effective then they needed to be more product oriented, which was rooted in the manufacturing era (Callahan, 1962). Consequently, it was this emphasis on process that had a negative impact on the arts. This was primarily due to the fact that science was seen as dependable, while artistic expression was not seen as dependable (Eisner, 2004). It was this conflict between the arts being viewed as a talent and therefore un-teachable and science being viewed as teachable that prevented early education reformers from

considering the arts as methods to advance learning (Eisner, 2004). These same or similar beliefs are evident today in current educational reform practices.

Those attributes present in educational reform during the Industrial Revolution are present in today's reform strategies as well (Eisner, 2004). Key in the design is a One–size–fits-all mentality that has caused many educators to become concerned (Eisner, 2004). Absent in this thinking is the development of creativity, which is needed to discover and develop innovations in the future. This emphasis on process and accountability has limited student exposure to the arts as a medium for learning across content areas. Contrary to 19th century thinking the arts in the 21st century should be considered a method to increase student achievement rather than something that deters achievement.

A focus on testing and accountability has limited the focus on arts experiences for students. This trend to view education as a science has had a negative impact on the engagement of some students (Eisner, 2004). As a result, teachers spend more time on teaching to a test than spending time on what strategies engage students in the learning. In other words, teachers may spend more time on testing and teaching to the test and less time on learning, which has adverse effects on students. Eisner (2004) suggests this manufacturing era thinking limits opportunities provided for students. This Industrial Age thinking is in direct conflict with Dewey who argued that while science articulates meaning the arts express meaning (Eisner, 2004). It is this opportunity to express meaning that highly motivates and engages students in the learning process.

John Dewey furthered this thinking when he suggested the arts play a central role in general education (Wolf, 1999). Though Dewey wrote of these beliefs many years ago

his words are relevant to education today as well. Nevertheless, it appears the arts have lost ground to other methods and practices, which have provided results through scientific measures. Eisner (2004) explains this by concluding that art and science are estranged, primarily because science is dependable and the artistic process is not. He goes on to say that science is cognitive and art is emotional (Eisner, 2004). Therefore, it is not surprising that because science can be tested the conclusion is made that it has more merit and is more useful than the arts (Eisner, 2004). This in turn limits the use of arts practices as a solution for closing the achievement gap.

Experts such as Eisner (2004) recognize that science can be an art. This is illustrated when students use inquiry to act, judge, and feel in order to make meaning and demonstrate understanding of scientific content (Eisner, 2004). This allows students to experience content authentically through a variety of mediums foundational in the arts with similar or greater outcomes. Nevertheless, the accountability associated with current legislative guidelines have caused the public and state education systems to place more demands on schools associated with uniform programming, mandates and measures (Eisner, 2004). Consequently, there appears to be a funding decline for the arts as more emphasis is placed on mathematics and science for the 21st century learner. Those in support of the arts in education are not suggesting that if one integrates the arts one must reduce the emphasis in mathematics or science. Rather, researchers such as Eisner (2004) suggest that the arts and science can coexist which will positively impact student achievement for all students.

It is evident there is a relationship between student achievement and arts experience across curricular areas as shown by the National Education Longitudinal

Survey (NELS:88) (Catterall, Chapleau, & Iwanaga 1999b). Further, study of the results indicated there were significant differences in the achievement level of students who were highly involved in the arts and suggested that students in arts rich environments actually outperformed those in arts poor environments (Catterall, Chapleau, & Iwanaga, 1999b; Catterall as cited in Fiske, 1999). It was also evident that when teachers involved at-risk students in arts activities, they leveled the playing field for disadvantaged youth overall. This is significant to consider as educators work to provide experiences for all students that promote learning and achievement (Fiske, 1999).

Students who use critical response in analyzing and critiquing art phenomena advance academically (Tishman, 1999). It is the relationship between the art form and the student experience that adds value to the learning (Tishman, 1999). This is important, because when students work to understand and infer what an artist is capturing in writing, painting or other mediums they use higher- level thinking. Tishman (1999) indicates that when students think critically they use reasoning skills and are more able to transfer and apply the strategy to other domains of learning such as math and science. In the end, the goal of the teacher is to have the students apply and transfer learned knowledge to other experiences. Heath (1998) furthers this understanding by connecting arts experiences to a broad set of skills needed across academic areas. These diverse experiences widen the depth of one's viewpoints, which ultimately impacts learning (Smithrim & Upitis, 2005). Smithrim and Upitis (2005) go further when they suggest that subject preference is present as early as grade one. Hence the need to begin arts experiences in the preschool stage of learning and development.

Arts experiences allow students to access and process information using a variety of learning methods. When students are given a diverse learning experience they have a better likelihood of engaging in the experience, because they have the opportunity to be successful in the style they prefer (Jolls & Grand, 2010). The arts allow students to experience learning in a nontraditional format, which may be needed by some students (Jolls & Grand, 2010). Jolls and Grand (2010) point out that artistic perception such as processing, analyzing, and responding to sensory information is evident in an arts environment. Giving students authentic experiences to actively participate in the learning increases engagement (Smilan, 2010). It is not surprising that current research links arts and higher order thinking.

There is a strong connection between the arts and intelligence. The arts can encourage awareness in children that opens doors to self-expression (Catterall, 1999a). This expression may be influenced through multiple mediums. When students use drama to recreate meaning comprehension of subject matter is positively impacted (DuPont, 1992). This in turn directly impacts learning and achievement and the transfer of skills from one medium to another (DuPont, 1992). As a result, reading comprehension increases, because students are actively engaged in the practice, which goes beyond basic skills practice (Page, 1983). In addition, students who are allowed to use dramatic representations of the topic better comprehend and recall what was read (DuPont, 1992). An environment rich in arts experiences will result in an increased level of achievement (Burton, Horowitz, & Abeles, 1980). Chapman, Greenfield, and Rinaldi, (2010) suggest teachers can get feedback from students by having them express feelings using drawing. In this form, drawing is considered an art form to communicate ideas. It is not surprising

then to understand the classroom teacher is critical in implementing an arts rich environment.

In order to get a better understanding of practitioner attitude concerning arts integration - an arts survey should be administered to teachers (Burton, Horowitz, & Abeles, 1980). Teacher perceptions are critical to understand when implementing an arts program within the school. It is common that most teachers integrate the arts into reading and social studies at the greatest level (Catterall & Waldorf, 1999c). However, they may also use dance, theater, and visual arts methods (Catterall & Waldorf, 1999c). It is vital to understand that, as in any method or practice, teacher buy-in is important to success (Catterall & Waldorf, 1999c).

Teachers play a key role in the use of arts activities in the classroom that go beyond methods and practices. Researchers such as Elliot Eisner (2004) and Barry Oreck (2004) cited understanding and addressing teacher attitudes and teacher perceptions in regards to arts education is paramount to implementing quality programs in the classroom. A study done by Hargreaves, Lamont-Marshall, and Tarrant (2003) showed that teachers lack confidence in teaching particular arts areas if their expertise level is minimal. Further, studies have shown that when teachers' perceive their abilities to be deficit in a particular art area fewer experiences will result for students (Welch, 1995). Davis (2008) goes on to suggest that when this occurs inequities result in access by students. Consequently, this marginalizes creative arts being viewed as a subject due to teacher lack of confidence and proficiency in particular arts areas (Gibson & Anderson, 2008). Knowing this, researchers caution that school leaders must plan for teacher development in the arts areas if arts integration is to flourish and transform

learning for all students (Greer & Silverman, 1988). This staff development should include classroom teachers, and teachers who specialize in arts content areas.

Classroom teachers, and teachers who specialize in arts content areas should team and collaborate at a high level when integrating arts education into the regular curriculum (Wolf, 1999). Burton, Horowitz, and Abeles (1980) indicate collaboration and cooperation is critical in the creation of arts integration implementations. Critical aspects of quality arts integration programs would include higher order thinking across multidimensional experiences (Burton, Horowitz, & Abeles, 1980). In order to do this, teachers must have rigorous and ongoing professional development (Burton, Horowitz, & Abeles, 1980). Most importantly the arts integration must be of high quality and purposeful to the learning (Wilheum,1995). If this can be accomplished, as the data has indicated, the achievement level of students will be positively impacted. In turn, students with a high level of arts exposure will believe themselves to be successful and thus their achievement level will increase (Burton, Horowitz, & Abeles, 1980). Student motivation is instrumental to achievement gains.

A 10-year study conducted from 1987 to 1998 in the area of student activity outside of the school day showed that students sought out activities in three areas: athletics, community service, and arts participation (Heath, 1998). Further, success in the arts can be a bridge to success in other content areas as well (Fiske, 1999). Fiske (1999) goes on to say this involvement with the arts changes students in some way, which increases self-concept and positively impacts academic and social achievement. Deasy (2002) indicated, the arts can attract those students who have been generally marginalized in the educational setting. This is key to consider, because of the implications it presents

for meeting Adequate yearly Progress as part of the No Child Left Behind legislative mandates. This would parallel with the findings of Heath's (1999) study, which found when students have an interest in something then they are motivated to pursue that interest at a high level, which positively results in achievement across areas. This has implications across all subject areas.

Evidence indicates that schools who provide arts experiences broaden the thinking capabilities of all student groups (Alter, Hays, & O'Hara, 2009). Students who engage in arts experiences learn to communicate using multiple mediums. This experience allows students the opportunity to use higher level thinking skills to develop knowledge at a level unimaginable through traditional methods. In addition, because the arts combine creativity, emotion, and information gathering, students experience thinking at multiple levels, which impacts learning and achievement (Schwarzman, 1997). This high level experience then connects with all aspects of the student experience across domains, which allows students to solve problems from complex perspectives. Research indicates this multi-faceted experience is not evident in a traditional classroom absent of the arts. Consequently, learning results when students make connections between new learning and past experience (Kumar & Bristor, 1999). Arts education accomplishes this, because the basis of the connection is rooted in the emotion of the past experience. It is also culturally relevant in the area of music, because music transcends all cultures and is an art form foundational to communication.

DuPont (1992) goes further with this understanding when she suggests that simply to read and discuss children's literature as an effective means of enhancing reading comprehension is not enough. Yet in most classrooms at the elementary level that

is done on a daily basis, and we ask ourselves why students are not engaged in the learning. She goes on to say student attitudes about learning will change if reading or other subject matter materials are associated with a fun, interesting, and authentic activity (DuPont, 1992). When drama is used to tell or understand stories students are more engaged than when the teacher reads a book to them (Page, 1983). Ertem (2010) supports this thinking when he connects technology with motivation, interest, and engagement. Technology, as an art medium, is of particular importance in today's world given the wide use of technologies used by most students at an early age. For some students, involvement in the arts is why they stay in school. Barry, Taylor, and Wallis, (1990) indicate this is true particularly for those students who struggle in school on a regular basis.

At-risk students have the most to gain through arts integration programs. Through the Chicago Arts Partnerships in Education (CAPE) project more is known about the benefits of art integration. Fiske (1999) discussed the findings from this project. The study compared 14 high-poverty schools in Chicago. The results indicated the arts-rich schools had greater achievement than arts poor schools. Consequently, socioeconomically disadvantaged students in arts-integrated schools performed better than those in comparison schools (Catterall & Waldorf, 1999c). Catterall (as cited in Fiske, 1999) also found evidence in the *NELS.88* study that regular and consistent involvement in music connected to increased achievement in reading and mathematics. Furthermore, Catterall (1998) found that motivation to learn new ideas was higher and the dropout rate lower for students highly involved in arts experiences. The arts impact students in a variety of ways from organizational skills, to learning, to understanding self

and others – in other words the arts has the ability to develop and nurture the whole child across multiple domains (Fowler, 1994). Further, Gardner, (1983) and his work with multiple intelligence theory suggests a link between the arts, intelligence, and learning.

Central to this idea is the thought that public school leaders and state and federal policy makers must make learning in and through the arts a priority (Giguere, 2005). State and local funding should be directed to strategies that have the greatest potential to address the diverse learning needs of students without being a one size fits all model (Respress & Lutfi, 2006). Respress and Lutfi (2006) indicate that understanding the connections between brain theory, arts integration, and achievement is key to further understand the need to increase the arts in schools. The advancement of brain theory in the discussion of arts education is critical to consider in terms of what students are regularly asked to do in the classroom. In many classrooms today students are merely asked to retrieve and store information to be used later on a test, which leads to boredom, underachievement, and behavior issues. However, the brain is a complex system and when fully utilized has the potential to assimilate information in order to think critically and make meaning of life experiences (Respress & Lutfi, 2006). "This creative power of the brain is released when human beings are in environments that are positive, nurturing, and stimulating and that encourage action and interaction" (Respress & Lutfi, 2006, p. 24). In contrast students are asked to be passive learners, which adversely impacts their learning potential. Social scientists conclude that students who participate in fine arts programming are more likely to experience academic achievement (Respress & Lutfi, 2006). In addition, participating in arts activities positively influence brain performance (Respress & Lutfi, 2006).

The synthesis of the research indicates a correlation between brain theory and the practice of arts integration to increase learning. Respress and Lutfi, (2006) also suggest a link between the fine arts and an increase in achievement by African American students. They state arts opportunities connect classroom instruction with interesting and nontraditional methods of learning (Respress & Lutfi, 2006). It is the experiences drawn from interest and engagement that creates pathways of understanding knowledge. Researchers such as Respress and Lutfi (2006) agree that the fine arts allow students to experience learning from a whole brain perspective.

As educators spend more time on finding strategies and programs to improve learning achievement an area often overlooked is the area of engagement. If students are not engaged in the learning or have no interest in the learning then achievement will not result. School leaders must recognize the need to focus on the idea of engagement as a way to intrinsically interest students in learning (Eisner, 2004). When students understand why they are learning they will be more apt to engage. Researchers such as Howard Gardner (as cited by Dowdy & Campbell, 2008) believe using visual, kinetic, and spatial approaches to learning highly engage students. In fact, research indicates that students are not interested in learning using textbooks and traditional instructional methods (Dowdy & Campbell, 2008; Ivey, 1999). Consequently, it is this lack of interest in traditional methods that has contributed to the disinterest in reading for students in high school (Bean, 1991). Research shows that students positively respond to the use of multiple resources to bring forth content (Dowdy & Campbell, 2008). The absence of variety disengages students in learning and ultimately impacts achievement. Further, the role of education is to serve the needs of students. Gardner (as cited by Mendoza, 2010)

argues that education has traditionally fallen short of the goal to engage all learners by focusing narrowly on linguistic and logical intelligence rather than areas of creative intelligence. It is clear there is a link between achievement and arts integration across curricular areas; however researchers such as Fiske (1999) continue to question why the arts are declining in many schools today given the need to find ways to close the learning gaps for all students.

This is a good question and the exploration of this answer is critical to the advancement of the arts in schools today. Key to this understanding is the link between *No Child Left Behind* accountability measures and the acceptance of arts education as a solution to closing the achievement gap with all learners. Researchers such as Horowitz, Burton, and Abeles (1999) and Smithrim and Upitis (2005) question whether high stakes testing of achievement associated with arts experiences may be difficult to find credible unless program activities can be measured appropriately. Researchers caution that if we make too many connections to increased achievement then it is possible the arts will be devalued (Smithrim & Upitis, 2005). That is an interesting concept to reflect upon. In other words, if the arts are deemed effective in engaging students and do increase student achievement, then they become open for criticism when success is not achieved (Smithrim & Upitis, 2005). However, the qualitative measures used may be a guide for future quantitative outcomes (Smithrim & Upitis, 2005). It is evident further research and exploration in this area is needed.

It is clear additional research must be done to authentically connect arts education to achievement using quantitative measures. Current research indicates a correlation between engagement, motivation, arts involvement, and achievement. Research indicates

student involvement in the arts has no negative impact on achievement in math or reading, which is counter to the argument that focusing on the arts takes time away from the core subject areas (Smithrim & Upitis, 2005). Oreck, Baum, and McCartney (1999) link interest in the arts at the elementary level with future academic success in middle and high school.

Public perception of the arts is critical and many see the arts as something extra—, a talent, or interest (Schwarzman, 1997). Researchers have provided compelling evidence that arts experiences positively influence learning and achievement. Consequently, public perception plays a key role in determining what public school systems finance and what they do not finance. Gainer (2010) discusses the implications when public perception is contrary to researched best practice. If the public is unaware of the research that links arts experiences with student achievement then efforts to make long-term changes in programming will not occur (Gainer, 2010). As school boards are forced to meet state and federal mandates with less funding school leaders are forced to implement those practices that are most closely aligned with the status quo (Gainer, 2010). Parent attitude in regard to arts education is key to the future of arts in schools. Parents will bring forth support for those things they value for their children. Clearly, evidence that links achievement to arts experiences must be communicated to parents in order to increase and sustain arts education in schools now and in the future.

More now than at any other time in history school systems must find ways to motivate and engage students in higher level learning — learning that is critical for every student to possess in order to be successful in the workplace in the future. The arts play a role in accomplishing this through active participation and experiential learning across

curricular areas. Clearly, there is agreement within the arts community that evidence exists which suggests there is a link between student achievement and arts integration.

In order to fully address the achievement problems of today we must consider that arts integration may be a solution. Arts integration, as an approach to learning, has been greatly overlooked and yet has potential in closing the achievement gap (Smithrim & Upitis, 2005). Researchers have found significant differences in the achievement level of students who are highly involved in the arts (Catterall, Chapleau, & Iwanaga, 1999b). Given this, more must be done to link arts integration to student achievement using scientific measures if the public is to see the arts as a credible medium to engage and motivate learners. If the arts positively impact student achievement then it is critical to continue to research this topic using quantitative measures to change public perception of arts education.

Chapter III: Methodology

Philosophy and Justification

Additional research must be done to authentically connect arts education to achievement using quantitative measures (Smithrim & Upitis, 2005). This study hopes to contribute quantitative research to the discussion of arts integration. It brings past research and current research together in an attempt to provide numerical evidence that there is a link between achievement and arts integration. If this can be accomplished the hope is for school leaders to consider arts integration as a response to closing the achievement gap for all students. To fully address the achievement problems of today we must consider that arts integration may be a solution.

Research Questions

1. What is the relationship between arts integration and achievement?
2. What are the differences in demographic factors and student reading growth?

Theoretical Framework

This study was conducted to test a theory that relates arts integration to achievement (growth in reading) for students in grades two through six at three arts magnet schools and five non-arts schools. An arts magnet school for the purpose of this study is defined as a school that has an "arts" focus and teachers integrate the arts across curricular areas as a method of teaching and learning. A non-arts school for the purpose of this study is defined as a school where classroom teachers do not integrate the arts across curricular areas as a method of teaching and learning. To accomplish this the

research method and design was carefully determined. The procedures and research design chosen allowed for the accumulation of data helpful to the intended goal.

Variables

Independent Variable

There are 10 independent variables: One independent variable with nine additional independent variable groups. One independent variable represents arts integration. Arts integration is defined as a method of teaching using arts activities from the visual, performing, literary, and technical arts areas within the regular curriculum. Nine additional independent variables represent demographic groups such as: gender, limited English proficiency (LEP), primary disability status (sp ed), White, Black, Hispanic, Asian/Pacific Islander, free and reduced lunch status (FR), and gifted. They are each nominal with two categories.

Dependent Variable

The dependent variable is achievement. Achievement is defined as growth in reading based on the Fall 2010 to Fall 2011 Measures of Academic Progress (MAP) RIT (Rasch Unit) Growth in Reading.

Hypotheses

Null Hypotheses

H1o: There is no relationship between arts integration and student achievement.

H2o: There is no significant difference between special education students at the arts magnet schools and special education students at the non-arts schools on reading growth.

H3o: There is no significant difference based on ethnicity at the arts magnet schools and ethnicity at the non-arts schools on reading growth.

H4o: There is no significant difference based on socioeconomic status at the arts magnet schools and socioeconomic status at the non-arts schools on reading growth.

H5o: There is no significant difference based on limited English proficiency at the arts magnet schools and limited English proficiency at the non-arts schools on reading growth.

H6o: There is no significant difference based on gender at the arts magnet schools and gender at the non-arts schools on reading growth.

H7o: There is no significant difference based on gifted at the arts magnet schools and gifted at the non-arts schools on reading growth.

Alternative (1) & Alternative Non-Directional (2-7) Hypotheses

H1ı There is a relationship between arts integration and achievement.

H2ı There is a significant difference between special education students at the arts magnet schools and special education students at the non-arts schools on reading growth.

H3ı There is a significant difference based on ethnicity at the arts magnet schools and ethnicity at the non-arts schools on reading growth.

H4ı There is a significant difference based on socioeconomic status at the arts magnet schools and socioeconomic status at the non-arts schools on reading growth.

$H5_1$ There is a significant difference based on limited English proficiency at the arts magnet schools and limited English proficiency at the non-arts schools on reading growth.

$H6_1$ There is a significant difference based on gender at the arts magnet schools and gender at the non-arts schools on reading growth.

$H7_1$ There is a significant difference based on gifted at the arts magnet schools and gifted at the non-arts schools on reading growth.

Research Design Strategy

This is a quantitative, cross sectional, survey design, and dual method with one independent variable with nine independent variable groups and one dependent variable with two groups. These measures were used to test a theory that relates arts integration to achievement for students in grades two through six at three arts magnet schools and five non-arts schools. Those surveyed were classroom teachers integrating the arts as defined in an arts magnet school and classroom teachers where arts integration is not the expected method in a non-arts school. The Fall 2010 to Fall 2011 Measures of Academic Progress (MAP) Reading RIT (Rasch Unit) growth data and the student demographic data represented the students in participant classrooms.

Measures

The designed survey was field tested prior to use and analyzed for reliability and validity. Changes were made to the measure developed and a pilot test was conducted after IRB approval and before formal use. The length of time needed to complete the questionnaire was 15 minutes or less. The questionnaire was provided online with alternatives as requested by the participants. Oreck's (2000) Teaching with the Arts

Survey (TWAS) was examined and used as a resource to develop survey questions appropriate for this study. No complete questions were used. However, in some cases there were similarities. Permission to use the TWAS survey for the purpose of this research study was granted July 29, 2011 from Barry Oreck, writer of the survey document, through an e-mail communication. As requested, the results of this study and the survey instrument developed for this project will be sent to Barry Oreck at the conclusion of the research study.

Sampling Design

The population for this study consisted of 4,948 students from 67 teacher's classrooms in five elementary schools and three middle schools in Minnesota. A non-probability purposive sampling method was used to identify classroom teachers who used arts integration instructional strategies across content areas within an arts magnet school setting and classroom teachers who used regular methods within a non-arts school setting. The criteria for selection included: classroom teachers in Grades 2-6 who taught in targeted schools with an arts focus during the 2010-2011 school year, classroom teachers in Grades 2-6 who taught in targeted schools without an arts focus during the 2010-2011 school year, schools that had integrated the arts for two or more years within an arts magnet program, schools that had not integrated the arts for two or more years within an arts magnet program, schools where the principal was interested in the proposed study, and schools who were willing to participate in the study.

Because this study was seeking to test a theory that related arts integration to achievement for students in grades two through six at three arts magnet schools it was key to have a diverse set of teachers participating who were using arts integration

methods. The teachers in the non-arts schools served as the control group. The school chosen as the control had similar demographics as the arts school within the same district. It was also important that the arts schools chosen were not new to the school-wide effort. Lastly, the support of the principal was crucial in order to gain participation of the teachers in this study at the highest level (Roberts, 2004). In this study, 69 teachers returned a consent form and 67 teachers completed the questionnaire. Based on a 97% return rate MAP RIT Growth scores were collected from 4,948 students. The RIT Growth score was representative of a Rasch Unit, which was defined as an equal interval scale to chart growth. The MAP and demographic data collected was considered secondary data since it was existing data. A typical return rate using a survey method is about 40% – 60%. Efforts were made to encourage the highest possible return.

Setting

This was a quantitative, cross sectional, survey design, and dual method study. Sixty-seven teachers at the following schools participated: A Elementary School, G Elementary School, F Elementary School, D School, B School, and E School in the S School District and C Elementary School, and H Elementary School in the T School District in Minnesota.

The process was as followed: the questionnaire was short and relevant to the participants, the questionnaire was available to complete online, during a site visit, or at a time of the participant choosing, a pre-paid addressed envelop was provided if needed, a follow-up request was recorded for those participants who requested feedback at the conclusion of the study. Participants were given the option to participate in a random drawing to receive a gift card after completing the questionnaire. An online reminder was

sent to improve response rate if applicable — this was done after two weeks and again after three weeks if needed.

In addition, relationship building, scheduled site visits, anonymous participation, and confidentiality were other factors that contributed to the study process. Teachers who chose to participate in the drawing selected the option on the agreement form completed prior to participation. An addressed and stamped envelope was provided to participants as applicable. Once the agreement form was received the online or paper/pencil survey was sent or completed.

Initially, a formal request was made to the assessment department of each school district. The appropriate process was followed to gain approval to survey school staff and gain access to student MAP data. Time was given to acquire the needed test score data and access to staff.

Data Collection Procedures

Survey Data Collection

Data was collected using a questionnaire. Participants were e-mailed an online questionnaire upon request. During the site visit a paper questionnaire was available for completion. Directions were given to allow participants time to complete the questionnaire online or paper pencil for convenience of the participant and to encourage a high response rate. Follow-up e-mail reminders were sent to further the data collection and to increase the response rate. Reminders were sent after two weeks and then again after three weeks of distributing the questionnaire. Participants received the questionnaire once a signed agreement form was received. Phone calls were made to develop a relationship with the principal in the building. A site visit was conducted to

meet and discuss the study with the school principal and staff upon request. When requested by the building principal the questionnaires were distributed at the site visit to interested participants.

Initially, approximately three weeks was given to schedule site visits and collect completed survey questionnaires. However, the time was extended to six weeks to accommodate school schedules and increase the return rate. As a result, the return rate was higher than typical.

Secondary Data Collection

A formal request for Fall 2010 to Fall 2011 MAP (Measures of Academic Progress) Reading RIT Growth scores was made to the Assessment Department in School District S and a meeting was requested with the Superintendent of School District T in accordance with permission needed to conduct research in the district. The secondary data requested was the Fall 2010 to Fall 2011 Reading RIT (Rasch Unit) growth score and demographic data (gender, limited English proficiency, (LEP) primary disability status, ethnicity, free and reduced lunch status, and gifted) of each student of teachers completing the survey. This was secondary data, because the data already existed for the students in the classroom of the teachers completing the survey. The Rasch (RIT) Unit was an equal interval scale that charted growth.

The secondary data request was made when all teachers completing the survey was known. The secondary data was coded using a symbol and no student names were used. The symbol matched the teacher name provided. The number of weeks between request of data and receiving data was dependent upon the guidelines outlined by the

district. It took approximately two to three months to receive MAP data from the participating district assessment offices.

IRB Approval

IRB approval was granted from Bethel University on November 29th, 2011.

Field Test

The designed survey was field-tested in September 2011 and analyzed for reliability and validity. Several teachers not participating in the study were invited to participate in the online field test. All those invited responded and completed the questionnaire. A follow-up survey was given to all respondents to gather feedback about the survey tool and the overall experience. All respondents noted the questions were relevant to their practice and easy to understand and the online process easy to navigate. The respondents also noted in general it took them approximately ten minutes or less to complete the online survey. The field test indicated that the length of time needed to complete the questionnaire was ten minutes or less. The results of the survey and the feedback from respondents indicated that the questionnaire and process were both reliable and valid. Some changes were made to the questionnaire in order to enhance the tool.

Pilot Test

A pilot test was conducted after IRB approval and before formal use. The pilot test consisted of at least nine participants based on the number of questions on the questionnaire. F Elementary School was selected as the pilot test site. The pilot test occurred on March 20, 2012. The principal scheduled a meeting of interested staff to

participate in the survey. Nine teachers completed the consent form and questionnaires were completed either online or with paper pencil. There was a good cross section of participants with three at Grade two, one at Grade three, two at Grade four, and three at Grade five. There were no issues reported and the teachers who participated completed the survey within the time limit found in the field test. Most of the teachers completed the questionnaire at the meeting. It was found however, that the principal leadership and meeting face-to-face with the participants was a benefit to receiving returned questionnaires. As a result, this standard was continued at all schools.

Data Analysis

A series of cross tabulation tables with chi square tests were used to analyze the 10 independent variables in relationship to the dependent variable (reading growth). The secondary data was coded using a symbol and no student names were used. Each student was identified with a symbol that correlated to the teacher who had completed the questionnaire. The data was analyzed to describe the relationship between the independent variable with nine independent groups and the dependent variable with two groups. These variables were categorized as nominal. The dependent variable had two groups: yes = growth in reading and no = no growth in reading based on the Fall 2010 to Fall 2011 MAP Reading RIT Growth score. The cross tabulations showed the results in a table. The independent variables were listed as arts integration, (AI) gender, (AI) limited English proficiency (LEP), (AI) primary disability status (special education), (AI) White, (AI) Black, (AI) Hispanic, (AI) Asian/Pacific Islander, (AI) free and reduced lunch status (SES), (A1) gifted. The dependent variable was listed as yes – growth in reading and no - no growth in reading for the arts magnet schools and the non-arts schools being studied.

The data showed the comparison between arts integration and achievement (growth in reading) across groups in the arts magnet schools and non-arts schools.

This is a non-probability purposive sample method therefore this survey study is not meant to make a generalization but may generate information for future study on the topic. The content area of reading was selected to analyze growth, because integrated arts activities typically occur in the area of Integrated Language Arts most frequently. Achievement was determined based on the Fall 2010 to Fall 2011 MAP RIT Growth scores in reading. The reading MAP data and the demographic data represented the students in the survey participant's classroom during the 2010-2011 school year.

The chi square test was used to calculate the significance level or probability value (Muijs, 2008). The chi square test tested the hypothesis that the row and column variables were independent or unrelated to one another (Muijs, 2008). This test gave a p-value when showing the relationship between arts integration and achievement (growth in reading). If there was a significant relationship between the two variables the p-value would be as small as possible or less than .05. If the relationship was significant the p-value would be recorded and would show a low probability that the difference was created by chance. The chi square test was applicable, because there was one dependent variable with two groups and one independent variable with two or more independent groups.

Limitations and Delimitations of Methodology

Limitations

Possible limitations included a low percentage of participants who returned a completed questionnaire and unidentified variables that impacted the study results. These possible limitations did not impact this study.

Delimitations

In order to delimit this study every effort was made to procure a high return rate of questionnaires. This was done by developing a relationship with the principal, scheduling site visits, following up on non-returned questionnaires, and securing district data in a timely manner. This dual method design worked to delimit the impact of unidentified variables in the study.

Ethical Considerations

The Belmont Principles were followed when seeking and inviting subjects to participate in the study. Information was shared with the subjects online or face-to-face explaining the study in a clear and concise manner in order to collect consent to participate. All ethical practices were adhered to at the highest level. An IRB approval form was completed and sent to the dissertation advisor, university supervisor, and/or the IRB Board prior to the start of the project. Confidentiality was of primary concern when collecting and reporting data. All promises made for participation were followed and rewards or information shared as communicated.

Chapter IV: Results

The data collected was used to describe the relationship between arts integration and student achievement (growth in reading). The Fall 2010 to Fall 2011 Northwest Evaluation Association (NWEA, 2011) Measures of Academic Progress (MAP) Reading Rasch Unit (RIT) growth data and the student demographic data represents the students in participant classrooms. Growth in achievement is defined as the positive difference between the Fall 2010 and Fall 2011 MAP RIT score for reading. The survey data represents teacher use of arts methods within the classroom. This study included data collected from three arts magnet schools and five non-arts magnet schools and is presented as group data.

Table 4.1

Group Data Collection

School	Designation	# Teachers	# Students
A	Arts Magnet	6	260
B	Arts Magnet	12	1475
C	Arts Magnet	4	74
D	Non Arts	3	355
E	Non Arts	18	1601
F	Non Arts	8	308
G	Non Arts	7	344
H	Non Arts	9	200
Incomplete Data			331
Total		67	4948

Achievement data (Table 4.1) was collected from 1,735 students attending an arts magnet school in School District S, 74 students attending an arts magnet school in School District T, 2,608 students attending a non-arts school in the School District S, 200 students attending a non-arts school in School District T, and 331 students attending arts and non-arts schools within the study with incomplete data. Survey data about arts methods was collected from 19 teachers working at an arts magnet school in School District S, four teachers working at an arts magnet school in School District T, 35 teachers working at a non-arts school in School District S, and nine teachers working at a non-arts school in School District T. The data collection included teachers working in

second through sixth grade classrooms, and students who were in second through sixth grade with a reading MAP test score fall 2010 and a reading MAP test score fall 2011. Consequently, this study represents, achievement data from 4,617 students that met the two data point criteria and survey data from 67 teachers.

Quantitative measures were used to test the following hypotheses:

Null Hypotheses

H1o: There is no relationship between arts integration and student achievement.

H2o: There is no significant difference between special education students at the arts magnet schools and special education students at the non-arts schools on reading growth.

H3o: There is no significant difference based on ethnicity at the arts magnet schools and ethnicity at the non-arts schools on reading growth.

H4o: There is no significant difference based on socioeconomic status at the arts magnet schools and socioeconomic status at the non-arts schools on reading growth.

H5o: There is no significant difference based on limited English proficiency at the arts magnet schools and limited English proficiency at the non-arts schools on reading growth.

H6o: There is no significant difference based on gender at the arts magnet schools and gender at the non-arts schools on reading growth.

H7o: There is no significant difference based on gifted at the arts magnet schools and gifted at the non-arts schools on reading growth.

Alternative (1) & Alternative Non-Directional (2-7) Hypotheses

$H1_1$ There is a relationship between arts integration and achievement.

$H2_1$ There is a significant difference between special education students at the arts magnet schools and special education students at the non-arts schools on reading growth.

$H3_1$ There is a significant difference based on ethnicity at the arts magnet schools and ethnicity at the non-arts schools on reading growth.

$H4_1$ There is a significant difference based on socioeconomic status at the arts magnet schools and socioeconomic status at the non-arts schools on reading growth.

$H5_1$ There is a significant difference based on limited English proficiency at the arts magnet schools and limited English proficiency at the non-arts schools on reading growth.

$H6_1$ There is a significant difference based on gender at the arts magnet schools and gender at the non-arts schools on reading growth.

$H7_1$ There is a significant difference based on gifted at the arts magnet schools and gifted at the non-arts schools on reading growth.

A bivariate analysis was completed using a cross tabulation method through SPSS. The data presented shows the relationship between student achievement and teachers at arts schools (teachers who worked in an arts magnet school for at least two continuous years), and teachers at non-arts schools (teachers who have not worked in an arts magnet school for at least two continuous years) when comparing the MAP RIT score from fall 2010 to the MAP RIT score fall 2011. The Pearson Chi-Square test was used to test the relationship between student achievement, teachers who worked in an arts

magnet school for at least two continuous years, and teachers who had not worked in an arts magnet school for at least two continuous years.

In addition, the Pearson chi square test was used to test the significance level of the relationships found between teacher practice and student reading growth of teachers who worked in arts and non-arts schools. The discussion of the survey results can be found after the gifted analysis in Chapter IV. The cross tabulations and chi square tests for the survey results presented can be found in Appendix C in numerical order.

Student achievement is defined as growth in reading from fall to fall using the MAP RIT score. The label "Yes" represents students who showed growth in reading from fall to fall. The label "Yes" also represents teachers who worked in an arts magnet school for at least two continuous years. The label "No" represents students with no growth in reading from fall to fall. The label "No" also represents teachers who had not worked in an arts magnet school for at least two continuous years. The label "0" and "3" represents data that did not meet the yes and/or no criteria. Below the table may be information about the chi square test and cell expected values. The standard for interpreting this information is that no cell should have an expected value less than one and no more than 20% of the cells should have an expected value less than five (Muijs, 2008). Muijs (2008) states, "In order for us to be able to say that the relationship we are studying is statistically significant, the p-value must be as small as possible or less than .05". The range for p-value significance is .05 (confidence level of 95%) to .01 (confidence level of 99%) (p. 122). However, in large samples, such as this one, cut-off points used may be less than .01 (p.123). Consequently, the cut-off points for this study are .05 to .000. The Pearson chi square test was used to test the significance level of the relationships found.

Further, effect size was calculated in those areas where a significant difference was found and can be found in Appendix C. Data collected in correlation with the research questions posed will be presented throughout this chapter.

Research Question One

What is the relationship between arts integration and achievement?

Null Hypothesis

H1o: There is no relationship between arts integration and student achievement

Alternative Non-Directional (1) Hypothesis

H1ı There is a relationship between arts integration and achievement.

The cross tabulation in figure 4.1 analyzes the relationship between reading growth and teachers in arts and non-arts schools. Growth is defined as the positive difference between the fall 2010 and fall 2011 MAP RIT score. Expected count is defined as the level we would expect if there were no relationship between the variables (Muijs, 2008).

The cross tabulation in Figure 4.1 shows that 1,155 students out of 1,562 students or 74% of students who had a teacher in an arts magnet school showed reading growth and 2,476 students out of 3,054 students or 81% of students who had a teacher in a non-arts school showed reading growth. Further, the cross tabulation shows that teachers without two years or more of experience in an arts magnet school had a higher number of students show growth than the expected count (2,476 actual, 2,397 expected) while teachers with two years or more of experience in an arts magnet school had a lower number of students show growth than the expected count (1,155 actual, 1,232 expected).

A significant difference was found between student growth and teachers in arts and non-arts schools, with the non-arts schools outperforming the arts schools (chi square = 4979.706, df = 6, p = .000 and likelihood ratio 50.082, df = 6, p = .000) using the cut-off point 0.05, .000 is less than 0.05. As a result, the null hypothesis was rejected.

Figure 4.1

Cross Tabulation Chi Square Test, Student Growth Arts/Non-Arts

Case Processing Summary

Teachers Two Years or More	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Growth/Teachers Two Years or More	4948	100.0%	0	.0%	4948	100.0%

Growth/Teachers Two Years or More Cross Tabulation

Student Growth			Teachers Two Years or More			Total
			0	Yes	No	
Student Growth	0	Count	1	0	0	1
		Expected Count	.0	.3	.7	1.0
		% within Growth	100.0%	.0%	.0%	100.0%
	Yes	Count	0	1155	2476	3631
		Expected Count	.7	1232.8	2397.4	3631.0
		% within Growth	.0%	31.8%	68.2%	100.0%
	No	Count	0	407	578	985
		Expected Count	.2	334.4	650.4	985.0
		% within Growth	.0%	41.3%	58.7%	100.0%
	3	Count	0	118	213	331
		Expected Count	.1	112.4	218.5	331.0
		% within Growth	.0%	35.6%	64.4%	100.0%
Total		Count	1	1680	3267	4948
		Expected Count	1.0	1680.0	3267.0	4948.0
		% within Growth	.0%	34.0%	66.0%	100.0%

Chi Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4979.706[a]	6	.000
Likelihood Ratio	50.082	6	.000
Linear-by-Linear Association	16.749	1	.000
N of Valid Cases	4948		

a. 6 cells (50.0%) have expected count less than 5. The minimum expected count is .00.

Research Question Two

What are the differences in demographic factors and student reading growth?

Null Hypothesis

H2o: There is no significant difference between special education students at the arts magnet schools and special education students at the non-arts schools on reading growth.

Alternative Non-Directional (2) Hypothesis

H2ı There is a significant difference between special education students at the arts magnet schools and special education students at the non-arts magnet school on reading growth.

The cross tabulation in Figure 4.2 analyzes the relationship between reading growth, special education students, and teachers with two or more years experience in an arts magnet school. This is a three-way cross tabulation analysis. Figure 4.2 shows the relationship between reading growth of special education students and teachers in arts magnet schools, and shows the relationship between reading growth of special education students and teachers in the non-arts schools. The label "Yes" represents special education students. The label "Yes" also represents teachers who worked in arts magnet schools. The label "No" represents non special education students. The label "No" represents teachers who worked in non-arts schools. The label "0" and "3" represents data that did not meet the yes and/or no criteria. Below the table may be information about the chi square test and cell expected values. The standard for interpreting this information is that no cell should have an expected value less than one and no more than 20% of the cells should have an expected value less than 5 (Muijs, 2008).

The cross tabulation shows that 142 special education students out of 182 special education students or 78% of the special education students in an arts school showed growth in reading and 271 special education students out of 329 special education students or 82% of special education students in the non-arts schools showed reading growth. In this sample the number of special education students who showed growth in the arts schools was higher than the expected count (142 actual, 128 expected). The number of special education students who showed growth in the non-arts schools was higher than the expected count (271 actual, 266 expected).

A significant difference was found between the reading growth of special education students, and teachers in the arts magnet schools, with the non-arts schools outperforming the arts schools (chi square = 7.948, df = 2, p = .019) using the cut-off point 0.05, .019 is less than 0.05. A significant difference was not found between reading growth of special education students, and teachers in the non-arts schools, with the non-arts schools outperforming the arts schools (chi square = 6.742, df = 4, p = .150) using the cut-off point 0.05 and .150 is greater than 0.05. As a result, the null hypothesis was rejected.

Figure 4.2

Cross Tabulation with Chi Square Test for Special Ed (Sp Ed) Students and Teachers in Arts Magnet Schools and Non-Arts Schools

Case Processing Summary

Sp Ed Students	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Growth/Special Ed/Teachers Two Years or More	4948	100.0%	0	.0%	4948	100.0%

Growth/Special Ed/Teachers Two Years or More Cross Tabulation

Teachers Two Years or More				Special Ed Label				Total
				0	Yes	No	3	
0	Student Growth	0	Count	1				1
			Expected Count	1.0				1.0
			% within Growth	100.0%				100.0%
	Total		Count	1				1
			Expected Count	1.0				1.0
			% within Growth	100.0%				100.0%
Yes	Student Growth	Yes	Count		142	1013		1155
			Expected Count		128.6	1026.4		1155.0
			% within Growth		12.3%	87.7%		100.0%
		No	Count		40	367		407
			Expected Count		45.3	361.7		407.0
			% within Growth		9.8%	90.2%		100.0%
		3	Count		5	113		118
			Expected Count		13.1	104.9		118.0
			% within Growth		4.2%	95.8%		100.0%
	Total		Count		187	1493		1680
			Expected Count		187.0	1493.0		1680.0
			% within Growth		11.1%	88.9%		100.0%
No	Student Growth	Yes	Count		271	2204	1	2476
			Expected Count		266.8	2207.7	1.5	2476.0
			% within Growth		10.9%	89.0%	.0%	100.0%

		No	Count		58	520	0	578
			Expected Count		62.3	515.4	.4	578.0
			% within Growth		10.0%	90.0%	.0%	100.0%
		3	Count		23	189	1	213
			Expected Count		22.9	189.9	.1	213.0
			% within Growth		10.8%	88.7%	.5%	100.0%
	Total		Count		352	2913	2	3267
			Expected Count		352.0	2913.0	2.0	3267.0
			% within Growth		10.8%	89.2%	.1%	100.0%
Total	Student Growth	0	Count	1	0	0	0	1
			Expected Count	.0	.1	.9	.0	1.0
			% within Growth	100.0%	.0%	.0%	.0%	100.0%
		Yes	Count	0	413	3217	1	3631
			Expected Count	.7	395.5	3233.3	1.5	3631.0
			% within Growth	.0%	11.4%	88.6%	.0%	100.0%
		No	Count	0	98	887	0	985
			Expected Count	.2	107.3	877.1	.4	985.0
			% within Growth	.0%	9.9%	90.1%	.0%	100.0%
		3	Count	0	28	302	1	331
			Expected Count	.1	36.1	294.7	.1	331.0
			% within Growth	.0%	8.5%	91.2%	.3%	100.0%
	Total		Count	1	539	4406	2	4948
			Expected Count	1.0	539.0	4406.0	2.0	4948.0
			% within Growth	.0%	10.9%	89.0%	.0%	100.0%

Chi Square Tests

Teachers Two Years or More		Value	df	Asymp. Sig. (2-sided)
0	Pearson Chi-Square	.[a]		
	N of Valid Cases	1		
Yes	Pearson Chi-Square	7.948[b]	2	.019
	Likelihood Ratio	9.485	2	.009
	Linear-by-Linear Association	7.429	1	.006
	N of Valid Cases	1680		
No	Pearson Chi-Square	6.742[c]	4	.150
	Likelihood Ratio	3.662	4	.454
	Linear-by-Linear Association	.284	1	.594
	N of Valid Cases	3267		
Total	Pearson Chi-Square	4957.905[d]	9	.000
	Likelihood Ratio	26.180	9	.002
	Linear-by-Linear Association	4.957	1	.026
	N of Valid Cases	4948		

a. No statistics are computed

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 13.13.

c. 3 cells (33.3%) have expected count less than 5. The minimum expected count is .13.

d. 10 cells (62.5%) have expected count less than 5. The minimum expected count is .00.

Null Hypothesis

H3o: There is no significant difference based on ethnicity at the arts magnet schools and ethnicity at the non-arts schools on reading growth.

Alternative Non-Directional (3) Hypothesis

H3ı There is a significant difference based on ethnicity at the arts magnet schools and ethnicity at the non-arts schools on reading growth.

Figure 4.3 analyzes the relationship between Ethnicity (White, Black, Hispanic, Asian/Pacific Islanders, Native American), reading growth, and teachers in arts and non-arts schools. Figure 4.3 shows the relationship between reading growth of ethnic groups

of students and teachers in arts magnet schools, and shows the relationship between reading growth of ethnic groups of students, and teachers in the non-arts schools. The label "Yes" represents student growth. The label "Yes" also represents teachers who worked in arts magnet schools. The label "No" represents no student growth. The label "No" represents teachers who worked in non-arts schools. The label "0" and "3" represents data that did not meet the yes and/or no criteria. Below the table may be information about the chi square test and cell expected values. The standard for interpreting this information is that no cell should have an expected value less than one and no more than 20% of the cells should have an expected value less than 5 (Muijs, 2008).

A significant difference was found between reading growth, ethnicity, and teachers in arts schools, with the non-arts schools outperforming the arts schools (chi square = 120.486, df = 10, p = .000) using the cut-off point 0.05, .000 is less than 0.05. A significant difference was found between reading growth, ethnicity, and teachers in non-arts schools, with the non-arts schools outperforming the arts schools (chi square = 60.518, df = 12, p = .000) using the cut-off point 0.05, .000 is less than 0.05. As a result, the null hypothesis was rejected.

Figure 4.3

Cross Tabulation with Chi Square Test for Ethnicity, Growth, and Teachers in Arts and Non-Arts Schools

Case Processing Summary

Ethnicity (White, Black, Hispanic, Asian/Pacific Islanders, Native American Combined)	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Ethnicity/Growth/Teachers Two Years or More	4944	99.9%	4	.1%	4948	100.0%

Ethnicity/Growth/Teachers Two Years or More Cross Tabulation

Teachers Two Years or More				Student Growth				Total
				0	Yes	No	3	
0	Ethnicity	0	Count	1				1
			Expected Count	1.0				1.0
			% within Ethnicity	100.0%				100.0%
	Total		Count	1				1
			Expected Count	1.0				1.0
			% within Ethnicity	100.0%				100.0%
Yes	Ethnicity	White	Count		1004	349	64	1417
			Expected Count		974.5	342.8	99.6	1417.0
			% within Ethnicity		70.9%	24.6%	4.5%	100.0%
		Black	Count		49	17	14	80
			Expected Count		55.0	19.4	5.6	80.0
			% within Ethnicity		61.3%	21.3%	17.5%	100.0%
		Hispanic	Count		41	15	24	80
			Expected Count		55.0	19.4	5.6	80.0
			% within Ethnicity		51.3%	18.8%	30.0%	100.0%
		Asian/Pacific Islander	Count		35	19	7	61
			Expected Count		42.0	14.8	4.3	61.0
			% within Ethnicity		57.4%	31.1%	11.5%	100.0%
		Native American	Count		25	6	8	39

			Expected Count		26.8	9.4	2.7	39.0
			% within Ethnicity		64.1%	15.4%	20.5%	100.0%
		11	Count		0	0	1	1
			Expected Count		.7	.2	.1	1.0
			% within Ethnicity		.0%	.0%	100.0%	100.0%
	Total		Count		1154	406	118	1678
			Expected Count		1154.0	406.0	118.0	1678.0
			% within Ethnicity		68.8%	24.2%	7.0%	100.0%
No	Ethnicity	White	Count		1857	423	116	2396
			Expected Count		1816.3	423.4	156.3	2396.0
			% within Ethnicity		77.5%	17.7%	4.8%	100.0%
		Black	Count		286	91	50	427
			Expected Count		323.7	75.5	27.9	427.0
			% within Ethnicity		67.0%	21.3%	11.7%	100.0%
		Hispanic	Count		132	21	19	172
			Expected Count		130.4	30.4	11.2	172.0
			% within Ethnicity		76.7%	12.2%	11.0%	100.0%
		Asian/Pacific Islander	Count		176	34	22	232
			Expected Count		175.9	41.0	15.1	232.0
			% within Ethnicity		75.9%	14.7%	9.5%	100.0%
		Native American	Count		23	7	6	36
			Expected Count		27.3	6.4	2.3	36.0
			% within Ethnicity		63.9%	19.4%	16.7%	100.0%
		11	Count		0	1	0	1
			Expected Count		.8	.2	.1	1.0
			% within Ethnicity		.0%	100.0%	.0%	100.0%
		44	Count		1	0	0	1
			Expected Count		.8	.2	.1	1.0

			% within Ethnicity		100.0%	.0%	.0%	100.0%
	Total		Count		2475	577	213	3265
			Expected Count		2475.0	577.0	213.0	3265.0
			% within Ethnicity		75.8%	17.7%	6.5%	100.0%
Total	Ethnicity	0	Count	1	0	0	0	1
			Expected Count	.0	.7	.2	.1	1.0
			% within Ethnicity	100.0%	.0%	.0%	.0%	100.0%
		White	Count	0	2861	772	180	3813
			Expected Count	.8	2798.8	758.1	255.3	3813.0
			% within Ethnicity	.0%	75.0%	20.2%	4.7%	100.0%
		Black	Count	0	335	108	64	507
			Expected Count	.1	372.1	100.8	33.9	507.0
			% within Ethnicity	.0%	66.1%	21.3%	12.6%	100.0%
		Hispanic	Count	0	173	36	43	252
			Expected Count	.1	185.0	50.1	16.9	252.0
			% within Ethnicity	.0%	68.7%	14.3%	17.1%	100.0%
		Asian/Pacific Islander	Count	0	211	53	29	293
			Expected Count	.1	215.1	58.3	19.6	293.0
			% within Ethnicity	.0%	72.0%	18.1%	9.9%	100.0%
		Native American	Count	0	48	13	14	75
			Expected Count	.0	55.1	14.9	5.0	75.0
			% within Ethnicity	.0%	64.0%	17.3%	18.7%	100.0%
		11	Count	0	0	1	1	2
			Expected Count	.0	1.5	.4	.1	2.0
			% within Ethnicity	.0%	.0%	50.0%	50.0%	100.0%
		44	Count	0	1	0	0	1
			Expected Count	.0	.7	.2	.1	1.0

	% within Ethnicity	.0%	100.0%	.0%	.0%	100.0%
Total	Count	1	3629	983	331	4944
	Expected Count	1.0	3629.0	983.0	331.0	4944.0
	% within Ethnicity	.0%	73.4%	19.9%	6.7%	100.0%

Chi Square Tests

Teachers Two Years or More		Value	df	Asymp. Sig. (2-sided)
0	Pearson Chi-Square	.[a]		
	N of Valid Cases	1		
Yes	Pearson Chi-Square	120.486[b]	10	.000
	Likelihood Ratio	80.508	10	.000
	Linear-by-Linear Association	42.145	1	.000
	N of Valid Cases	1678		
No	Pearson Chi-Square	60.518[c]	12	.000
	Likelihood Ratio	54.590	12	.000
	Linear-by-Linear Association	8.284	1	.004
	N of Valid Cases	3265		
Total	Pearson Chi-Square	5074.470[d]	21	.000
	Likelihood Ratio	127.124	21	.000
	Linear-by-Linear Association	29.560	1	.000
	N of Valid Cases	4944		

a. No statistics are computed because Ethnicity and Growth are constants.

b. 5 cells (27.8%) have expected count less than 5. The minimum expected count is .07.

c. 7 cells (33.3%) have expected count less than 5. The minimum expected count is .07.

d. 17 cells (53.1%) have expected count less than 5. The minimum expected count is .00.

The cross tabulation in Figures 4.4 through 4.7 analyze the relationship between specific ethnic groups, reading growth, and teachers in arts and non-arts schools. The Native American sub group only appears in the combination ethnicity analysis and is not analyzed as an isolated sub group within this study. The number of American Indian students was too small to provide meaningful statistics.

Figure 4.4 analyzes the relationship between White students, growth, and teachers in arts or non-arts schools. Figure 4.4 shows that 1,004 White students out of 1,353 White students or 74% of White students showed reading growth in the arts schools while 1,857 White students out of 2,280 White students or 81% of the students showed reading growth in the non-arts schools. In this sample the number of White students who showed

growth in the arts schools was less than the expected count (1,004 actual, 1,063 expected). The number of White students who showed growth in the non-arts schools was higher than the expected count (1,857 actual, 1,797 expected).

A significant difference was found between reading growth of White students and teachers in arts and non-arts schools, with the non-arts schools outperforming the arts schools (chi square = 28.843, df = 2, p = .000) using the cut-off point 0.05, .000 is less than 0.05.

Figure 4.4

Cross Tabulation with Chi Square Test for White Students, Growth, and Teachers in Arts and Non-Arts Schools

Case Processing Summary

White Students	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Teachers Two Years or More/ Growth	3813	100.0%	0	.0%	3813	100.0%

Teachers Two Years or More Growth Cross Tabulation

			Student Growth			
			Yes	No	3	Total
Teachers Two Years or More	Yes	Count	1004	349	64	1417
		Expected Count	1063.2	286.9	66.9	1417.0
		% within Tchr Two Yrs or More	70.9%	24.6%	4.5%	100.0%
	No	Count	1857	423	116	2396
		Expected Count	1797.8	485.1	113.1	2396.0
		% within Tchr Two Yrs or More	77.5%	17.7%	4.8%	100.0%
Total		Count	2861	772	180	3813
		Expected Count	2861.0	772.0	180.0	3813.0
		% within Tchr Two Yrs or More	75.0%	20.2%	4.7%	100.0%

Chi Square Tests

White Students	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	26.843[a]	2	.000
Likelihood Ratio	26.372	2	.000
Linear-by-Linear Association	11.749	1	.001
N of Valid Cases	3813		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 66.89.

Figure 4.5 analyzes the relationship between Black students, growth, and teachers in arts and non-arts schools. Figure 4.5 shows that 49 Black students out of 66 Black students or 74% of the Black students showed reading growth in the arts schools and 286 Black students out of 377 Black students or 76% of the Black students showed reading growth in the non-arts schools. In this sample the number of Black students who showed growth in the arts schools was less than the expected count (49 actual, 52 expected). The

number of Black students who showed growth in the non-arts schools was more than the expected count (286 actual, 282 expected).

A significant difference was not found between reading growth of Black students and teachers in an arts or non-arts school, with the non-arts schools outperforming the arts schools (chi square = 2.124, df = 2, p = .346). Using the cut-off point 0.05, .346 is greater than 0.05.

Figure 4.5

Cross Tabulation with Chi Square Test for Black Students, Growth, and Teachers in Arts and Non-Arts Schools

Case Processing Summary

Black Students	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Teachers Two Years or More/ Growth	507	100.0%	0	.0%	507	100.0%

Teachers Two Years or More Growth Cross Tabulation

			Student Growth			Total
			Yes	No	3	
Teachers Two Years or More	Yes	Count	49	17	14	80
		Expected Count	52.9	17.0	10.1	80.0
		% within Teachers Two Years or More	61.3%	21.3%	17.5%	100.0%
	No	Count	286	91	50	427
		Expected Count	282.1	91.0	53.9	427.0
		% within Teachers Two Years or More	67.0%	21.3%	11.7%	100.0%
Total		Count	335	108	64	507
		Expected Count	335.0	108.0	64.0	507.0
		% within Teachers Two Years or More	66.1%	21.3%	12.6%	100.0%

Chi Square Tests

Black Students	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.124[a]	2	.346
Likelihood Ratio	1.975	2	.373
Linear-by-Linear Association	1.780	1	.182
N of Valid Cases	507		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 10.10.

Figure 4.6 analyzes the relationship between Hispanic students, growth, and teachers in arts and non-arts schools. Figure 4.6 shows that 41 Hispanic students out of 56 Hispanic students or 73% of the Hispanic students showed reading growth in the arts schools and 132 Hispanic students out of 153 Hispanic students or 86% of the Hispanic students showed reading growth in the non-arts schools. In this sample the number of Hispanic students who showed growth in the arts schools was less than the expected count (41 actual, 54 expected). The number of Hispanic students who showed growth in the non-arts schools was more than the expected count (132 actual, 118 expected).

A significant difference was found between reading growth of Hispanic students and teachers in arts and non-arts schools, with the non-arts schools outperforming the arts schools (chi square = 18.300, df = 2, p = .000). Using the cut-off point 0.05, .000 is less than 0.05.

Figure 4.6

Cross Tabulation with Chi Square Test for Hispanic Students, Growth, and Teachers in Arts and Non-Arts Schools

Case Processing Summary

Hispanic Students	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Teachers Two Years or More/ Growth	252	100.0%	0	.0%	252	100.0%

Teachers Two Years or More Growth Cross Tabulation

			Student Growth			Total
			Yes	No	3	
Teachers Two Years or More	Yes	Count	41	15	24	80
		Expected Count	54.9	11.4	13.7	80.0
		% within Teachers Two Years or More	51.3%	18.8%	30.0%	100.0%
	No	Count	132	21	19	172
		Expected Count	118.1	24.6	29.3	172.0
		% within Teachers Two Years or More	76.7%	12.2%	11.0%	100.0%
Total		Count	173	36	43	252
		Expected Count	173.0	36.0	43.0	252.0
		% within Teachers Two Years or More	68.7%	14.3%	17.1%	100.0%

Chi Square Tests

Hispanic Students	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	18.300[a]	2	.000
Likelihood Ratio	17.574	2	.000
Linear-by-Linear Association	18.180	1	.000
N of Valid Cases	252		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 11.43.

Figure 4.7 analyzes the relationship between Asian/Pacific Islander students, growth, and teachers in arts and non-arts schools. Figure 4.7 shows that 35 Asian/Pacific Islander students out of 54 Asian/Pacific Islander students or 65% of Asian/Pacific Islander students showed reading growth in the arts schools and 176 Asian/Pacific Islander students out of 210 Asian/Pacific Islander students or 84% of the Asian/Pacific Islander students showed reading growth in the non-arts schools. In this sample the number of Asian/Pacific Islander students who showed growth in the arts schools was less than the expected count (35 actual, 43 expected). The number of Asian/Pacific Islander students who showed growth in the non-arts schools was more than the expected count (176 actual, 167 expected).

A significant difference was found between reading growth of Asian/Pacific Islander students and teachers in arts and non-arts schools, with the non-arts schools outperforming the arts schools (chi square = 9.748, df = 2, p = .008). Using the cut-off point 0.05, .008 is less than 0.05.

Figure 4.7

Cross Tabulation with Chi Square Test for Asian/Pacific Islanders, Growth, and Teachers in Arts and Non-Arts Schools

Case Processing Summary

Asian/Pacific Islander Students	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Teachers Two Years or More/ Growth	293	100.0%	0	.0%	293	100.0%

Teachers Two Years or More Growth Cross Tabulation

Asian/Pacific Islander Students			Growth			Total
			Yes	No	3	
Teachers Two Years or More	Yes	Count	35	19	7	61
		Expected Count	43.9	11.0	6.0	61.0
		% within Teachers Two Years or More	57.4%	31.1%	11.5%	100.0%
	No	Count	176	34	22	232
		Expected Count	167.1	42.0	23.0	232.0
		% within Teachers Two Years or More	75.9%	14.7%	9.5%	100.0%
Total		Count	211	53	29	293
		Expected Count	211.0	53.0	29.0	293.0
		% within Teachers Two Years or More	72.0%	18.1%	9.9%	100.0%

Chi Square Tests

Asian/Pacific Islander Students	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	9.748[a]	2	.008
Likelihood Ratio	8.945	2	.011
Linear-by-Linear Association	4.659	1	.031
N of Valid Cases	293		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 6.04.

Null Hypothesis

H4o: There is no significant difference based on socioeconomic status at the arts magnet schools and socioeconomic status at the non-arts schools on reading growth.

Alternative Non-Directional (4) Hypothesis

H4ı There is a significant difference based on socioeconomic status at the arts magnet school and socioeconomic status at the non-arts magnet school on reading growth.

Figure 4.8 analyzes the relationship between free/reduce (FR) lunch status students, growth, and teachers in arts and non-arts schools. Figure 4.8 shows that 302 FR students out of 429 FR students or 70% of the students showed reading growth in the arts schools and 801 FR students out of 1,013 students or 79% of the students showed reading growth in the non-arts schools. In this sample the number of FR students who showed growth in the arts schools was less than the expected count (302 actual, 334 expected). The number of FR students who showed growth in the non-arts schools was less than the expected count (801 actual, 846 expected).

A significant difference was found between reading growth of free/reduce lunch status (FR) students, and teachers in arts schools, with the non-arts schools outperforming the arts schools (chi square = 26.919, df = 2, p = .000). Using the cut-off point 0.05, .000 is less than 0.05. A significant difference was found between reading growth of free/reduce lunch status (FR) students, and teachers in non-arts schools, with the non-arts schools outperforming the arts schools (chi square = 25.861, df = 4, p = .000). Using the cut-off point 0.05, .000 is less than 0.05. As a result, the null hypothesis was rejected.

Figure 4.8

Cross Tabulation with Chi Square Test for Free/Reduce Lunch Status (FR) Students, Growth, and Teachers in Arts and Non-Arts Schools

Case Processing Summary

Free/Reduced Lunch Students (FR)	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Growth/FR/Teachers Two or More	4948	100.0%	0	.0%	4948	100.0%

Growth/FR/Teachers Two Years or More Crosstabulation

Teachers Two Years or More				F & R 0	Yes	No	3	Total
0	Growth	0	Count	1				1
			Expected Count	1.0				1.0
			% within Growth	100.0%				100.0%
	Total		Count	1				1
			Expected Count	1.0				1.0
			% within Growth	100.0%				100.0%
Yes	Growth	Yes	Count		302	853		1155
			Expected Count		334.1	820.9		1155.0
			% within Growth		26.1%	73.9%		100.0%
		No	Count		127	280		407
			Expected Count		117.7	289.3		407.0
			% within Growth		31.2%	68.8%		100.0%
		3	Count		57	61		118
			Expected Count		34.1	83.9		118.0
			% within Growth		48.3%	51.7%		100.0%
	Total		Count		486	1194		1680
			Expected Count		486.0	1194.0		1680.0
			% within Growth		28.9%	71.1%		100.0%
No	Growth	Yes	Count		801	1674	1	2476
			Expected Count		846.6	1628.7	.8	2476.0
			% within Growth		32.4%	67.6%	.0%	100.0%
		No	Count		212	366	0	578
			Expected Count		197.6	380.2	.2	578.0
			% within Growth		36.7%	63.3%	.0%	100.0%
		3	Count		104	109	0	213
			Expected Count		72.8	140.1	.1	213.0
			% within Growth		48.8%	51.2%	.0%	100.0%
	Total		Count		1117	2149	1	3267
			Expected Count		1117.0	2149.0	1.0	3267.0
			% within Growth		34.2%	65.8%	.0%	100.0%
Total	Growth	0	Count	1	0	0	0	1
			Expected Count	.0	.3	.7	.0	1.0
			% within Growth	100.0%	.0%	.0%	.0%	100.0%
		Yes	Count	0	1103	2527	1	3631

		Expected Count	.7	1176.3	2453.2	.7	3631.0
		% within Growth	.0%	30.4%	69.6%	.0%	100.0%
	No	Count	0	339	646	0	985
		Expected Count	.2	319.1	665.5	.2	985.0
		% within Growth	.0%	34.4%	65.6%	.0%	100.0%
	3	Count	0	161	170	0	331
		Expected Count	.1	107.2	223.6	.1	331.0
		% within Growth	.0%	48.6%	51.4%	.0%	100.0%
	Total	Count	1	1603	3343	1	4948
		Expected Count	1.0	1603.0	3343.0	1.0	4948.0
		% within Growth	.0%	32.4%	67.6%	.0%	100.0%

Chi-Square Tests

Teacher Two Years or More		Value	df	Asymp. Sig. (2-sided)
0	Pearson Chi-Square	.[a]		
	N of Valid Cases	1		
Yes	Pearson Chi-Square	26.919[b]	2	.000
	Likelihood Ratio	25.056	2	.000
	Linear-by-Linear Association	23.224	1	.000
	N of Valid Cases	1680		
No	Pearson Chi-Square	25.861[c]	4	.000
	Likelihood Ratio	25.110	4	.000
	Linear-by-Linear Association	23.458	1	.000
	N of Valid Cases	3267		
Total	Pearson Chi-Square	4996.785[d]	9	.000
	Likelihood Ratio	65.652	9	.000
	Linear-by-Linear Association	40.577	1	.000
	N of Valid Cases	4948		

a. No statistics are computed because Growth and F & R are constants.

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 34.14.

c. 3 cells (33.3%) have expected count less than 5. The minimum expected count is .07.

d. 10 cells (62.5%) have expected count less than 5. The minimum expected count is .00.

Null Hypothesis

H5o: There is no significant difference based on limited English proficiency at the arts magnet school and limited English proficiency at the non-arts magnet school on reading growth.

Alternative Non-Directional (5) Hypothesis

H5ı There is a significant difference based on limited English proficiency at the arts magnet school and limited English proficiency at the non-arts magnet school on reading growth.

Figure 4.9 analyzes the relationship between Limited English Proficiency (LEP) students, growth, and teachers in arts and non-arts schools. Figure 4.9 shows that 29 LEP students out of 37 LEP students or 78% of the LEP students showed reading growth in arts schools and 174 LEP students out of 213 LEP students or 82% of the LEP students showed growth in non-arts schools. In this sample the number of LEP students who showed growth in the arts schools was less than the expected count (29 actual, 30 expected). The number of LEP students who showed growth in the non-arts schools was less than the expected count (174 actual, 184 expected).

A significant difference was not found between reading growth of Limited English Proficiency (LEP) status students, and teachers in arts schools, with the non-arts schools outperforming the arts schools (chi square = 8.983, df = 4, p = .062). Using the cut-off point 0.05, .062 is greater than 0.05. A significant difference was found between reading growth of Limited English Proficiency (LEP) status students, and teachers in non-arts arts schools, with the non-arts schools outperforming the arts schools (chi square

= 23.083, df = 4, p = .000). Using the cut-off point 0.05, .000 is less than 0.05. As a result, the null hypothesis was rejected.

Figure 4.9

Cross Tabulation with Chi Square Test for Limited English Proficiency (LEP) Students, Growth, and Teachers in Arts and Non-Arts Schools

Case Processing Summary

LEP Students Limited English Proficiency	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Growth/LEP/Teacher Two Years or More	4948	100.0%	0	.0%	4948	100.0%

Growth/LEP/Teachers Two Years or More Cross Tabulation

Teachers Two Years or More				LEP					Total
				0	Yes	No	3	12	
0	Growth	0	Count	1					1
			Expected Count	1.0					1.0
			% within Growth	100.0%					100.0%
	Total		Count	1					1
			Expected Count	1.0					1.0
			% within Growth	100.0%					100.0%
Yes	Growth	Yes	Count		29	1125		1	1155
			Expected Count		30.9	1123.4		.7	1155.0
			% within Growth		2.5%	97.4%		.1%	100.0%
		No	Count		8	399		0	407
			Expected Count		10.9	395.9		.2	407.0
			% within Growth		2.0%	98.0%		.0%	100.0%
		3	Count		8	110		0	118
			Expected Count		3.2	114.8		.1	118.0

			% within Growth		6.8%	93.2%		.0%	100.0%
	Total		Count		45	1634		1	1680
			Expected Count		45.0	1634.0		1.0	1680.0
			% within Growth		2.7%	97.3%		.1%	100.0%
No	Growth	Yes	Count		174	2301	1		2476
			Expected Count		184.9	2289.6	1.5		2476.0
			% within Growth		7.0%	92.9%	.0%		100.0%
		No	Count		39	539	0		578
			Expected Count		43.2	534.5	.4		578.0
			% within Growth		6.7%	93.3%	.0%		100.0%
		3	Count		31	181	1		213
			Expected Count		15.9	197.0	.1		213.0
			% within Growth		14.6%	85.0%	.5%		100.0%
	Total		Count		244	3021	2		3267
			Expected Count		244.0	3021.0	2.0		3267.0
			% within Growth		7.5%	92.5%	.1%		100.0%
Total	Growth	0	Count	1	0	0	0	0	1
			Expected Count	.0	.1	.9	.0	.0	1.0
			% within Growth	100.0%	.0%	.0%	.0%	.0%	100.0%
		Yes	Count	0	203	3426	1	1	3631
			Expected Count	.7	212.1	3416.0	1.5	.7	3631.0
			% within Growth	.0%	5.6%	94.4%	.0%	.0%	100.0%
		No	Count	0	47	938	0	0	985
			Expected Count	.2	57.5	926.7	.4	.2	985.0
			% within Growth	.0%	4.8%	95.2%	.0%	.0%	100.0%
		3	Count	0	39	291	1	0	331
			Expected Count	.1	19.3	311.4	.1	.1	331.0

		% within Growth	.0%	11.8%	87.9%	.3%	.0%	100.0%
	Total	Count	1	289	4655	2	1	4948
		Expected Count	1.0	289.0	4655.0	2.0	1.0	4948.0
		% within Growth	.0%	5.8%	94.1%	.0%	.0%	100.0%

Chi Square Tests

Teachers Two Years or More		Value	df	Asymp. Sig. (2-sided)
0	Pearson Chi-Square	.[a]		
	N of Valid Cases	1		
Yes	Pearson Chi-Square	8.983[b]	4	.062
	Likelihood Ratio	7.133	4	.129
	Linear-by-Linear Association	2.068	1	.150
	N of Valid Cases	1680		
No	Pearson Chi-Square	23.083[c]	4	.000
	Likelihood Ratio	16.922	4	.002
	Linear-by-Linear Association	7.746	1	.005
	N of Valid Cases	3267		
Total	Pearson Chi-Square	4978.345[d]	12	.000
	Likelihood Ratio	42.275	12	.000
	Linear-by-Linear Association	5.880	1	.015
	N of Valid Cases	4948		

a. No statistics are computed because Growth and LEP are constants.

b. 4 cells (44.4%) have expected count less than 5. The minimum expected count is .07.

c. 3 cells (33.3%) have expected count less than 5. The minimum expected count is .13.

d. 14 cells (70.0%) have expected count less than 5. The minimum expected count is .00.

Null Hypothesis

H6o: There is no significant difference based on gender at the arts magnet schools and gender at the non-arts schools on reading growth.

Alternative Non-Directional (6) Hypothesis

H6ı There is a significant difference based on gender at the arts magnet school and gender at the non-arts magnet school on reading growth.

The cross tabulation in Figure 4.10 analyzes the relationship between Gender (Male, Female), reading growth, and teachers in arts and non-arts schools.

Figure 4.10 shows that 595 male students out of 771 male students or 77% of the male students showed reading growth in arts schools and 1,237 male students out of 1,526 male students or 81% of the male students showed reading growth in non-arts schools. In this sample the number of male students who showed growth in the arts schools was more than the expected count (595 actual, 575 expected) and the number of male students who showed growth in the non-arts schools was less than the expected count (1,237 actual, 1,239 expected).

Figure 4.10 also shows that 560 female students out of 790 female students or 71% of the female students showed reading growth in the arts schools and 1,234 of the female students out of 1,523 or 81% of the female students showed reading growth in the non-arts schools. In this sample the number of female students who showed growth in the arts schools was less than the expected count (560 actual, 579 expected) and the number of female students who showed growth in the non-arts schools was more than the expected count (1,234 actual, 1,233 expected).

A significant difference was found between reading growth, gender, and teachers in arts schools, with the non-arts schools outperforming the arts schools (chi square = 9.889, df = 2, p = .007). Using the cut-off point 0.05, .007 is less than 0.05. A significant difference was not found between reading growth, gender, and teachers in non-arts schools, with the non-arts schools outperforming the arts schools (chi square = 1.381, df = 6, p = .967). Using the cut-off point 0.05, .967 is greater than 0.05. As a result, the null hypothesis was rejected.

Figure 4.10

Cross Tabulation with Chi Square Test for Gender, Growth, and Teachers in Arts and Non-Arts Schools

Case Processing Summary

Gender (Male, Female)	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Growth/Gender/Teachers Two Years or More	4946	100.0%	2	.0%	4948	100.0%

Growth/Gender/Teachers Two Years or More Cross Tabulation

Teachers Two Years or More				Gender					
				0	Male	Female	3	4	Total
0	Growth	0	Count	1					1
			Expected Count	1.0					1.0
			% within Growth	100.0%					100.0%
	Total		Count	1					1
			Expected Count	1.0					1.0
			% within Growth	100.0%					100.0%
Yes	Growth	Yes	Count		595	560			1155
			Expected Count		575.8	579.2			1155.0
			% within Growth		51.5%	48.5%			100.0%
		No	Count		176	230			406
			Expected Count		202.4	203.6			406.0
			% within Growth		43.3%	56.7%			100.0%
		3	Count		66	52			118
			Expected Count		58.8	59.2			118.0
			% within Growth		55.9%	44.1%			100.0%
	Total		Count		837	842			1679
			Expected Count		837.0	842.0			1679.0
			% within Growth		49.9%	50.1%			100.0%
No	Growth	Yes	Count		1237	1234	2	2	2475
			Expected Count		1239.0	1233.0	1.5	1.5	2475.0
			% within Growth		50.0%	49.9%	.1%	.1%	100.0%
		No	Count		289	289	0	0	578
			Expected Count		289.4	287.9	.4	.4	578.0
			% within Growth		50.0%	50.0%	.0%	.0%	100.0%

		3	Count		109	104	0	0	213
			Expected Count		106.6	106.1	.1	.1	213.0
			% within Growth		51.2%	48.8%	.0%	.0%	100.0%
	Total		Count		1635	1627	2	2	3266
			Expected Count		1635.0	1627.0	2.0	2.0	3266.0
			% within Growth		50.1%	49.8%	.1%	.1%	100.0%
Total	Growth	0	Count	1	0	0	0	0	1
			Expected Count	.0	.5	.5	.0	.0	1.0
			% within Growth	100.0%	.0%	.0%	.0%	.0%	100.0%
		Yes	Count	0	1832	1794	2	2	3630
			Expected Count	.7	1814.3	1812.1	1.5	1.5	3630.0
			% within Growth	.0%	50.5%	49.4%	.1%	.1%	100.0%
		No	Count	0	465	519	0	0	984
			Expected Count	.2	491.8	491.2	.4	.4	984.0
			% within Growth	.0%	47.3%	52.7%	.0%	.0%	100.0%
		3	Count	0	175	156	0	0	331
			Expected Count	.1	165.4	165.2	.1	.1	331.0
			% within Growth	.0%	52.9%	47.1%	.0%	.0%	100.0%
	Total		Count	1	2472	2469	2	2	4946
			Expected Count	1.0	2472.0	2469.0	2.0	2.0	4946.0
			% within Growth	.0%	50.0%	49.9%	.0%	.0%	100.0%

Chi Square Tests

Teachers Two Years or More		Value	df	Asymp. Sig. (2-sided)
0	Pearson Chi-Square	.[a]		
	N of Valid Cases	1		
Yes	Pearson Chi-Square	9.889[b]	2	.007
	Likelihood Ratio	9.914	2	.007
	Linear-by-Linear Association	.917	1	.338
	N of Valid Cases	1679		
No	Pearson Chi-Square	1.381[c]	6	.967
	Likelihood Ratio	2.322	6	.888
	Linear-by-Linear Association	.136	1	.713
	N of Valid Cases	3266		
Total	Pearson Chi-Square	4951.905[d]	12	.000
	Likelihood Ratio	25.939	12	.011
	Linear-by-Linear Association	.137	1	.711
	N of Valid Cases	4946		

a. No statistics are computed because Growth and Gender are constants.

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 58.82.

c. 6 cells (50.0%) have expected count less than 5. The minimum expected count is .13.

d. 14 cells (70.0%) have expected count less than 5. The minimum expected count is .00.

Null Hypothesis

H7o: There is no significant difference based on gifted at the arts magnet schools and gifted at the non-arts schools on reading growth.

Alternative Non-Directional (7) Hypothesis

H7ı There is a significant difference based on gifted at the arts magnet schools and gifted at the non-arts schools on reading growth.

Figure 4.11 analyzes the relationship between gifted students, growth, and teachers in arts and non-arts schools. Figure 4.11 shows that 260 gifted students out of 355 gifted students or 73% of the gifted students showed reading growth in arts schools and 582 gifted students out of 687 gifted students or 85% of the gifted students showed

reading growth in the non-arts schools. In this sample the number of gifted students who showed growth in the arts schools was more than the expected count (260 actual, 253 expected). The number of gifted students who showed growth in the non-arts schools was more than the expected count (582 actual, 547 expected).

A significant difference was found between reading growth of gifted students, and teachers in arts schools, with the non-arts schools outperforming the arts schools (chi square = 7.674, df = 2, p = .022). Using the cut-off point 0.05, .022 is less than 0.05. A significant difference was found between reading growth of gifted students, and teachers in non-arts schools, with the non-arts schools outperforming the arts schools (chi square = 12.012, df = 2, p = .002). Using the cut-off point 0.05, .002 is less than 0.05. As a result, the null hypothesis was rejected.

Figure 4.11

Cross Tabulation with Chi Square Test for Gifted Students, Growth, and Teachers in Arts and Non-Arts Schools

Case Processing Summary

Gifted Students	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Growth/Gifted/Teachers Two Years or More	4948	100.0%	0	.0%	4948	100.0%

Growth/Gifted/Teachers Two Years or More Cross Tabulation

Teachers Two Years or More				Gifted			Total
				0	Yes	No	
0	Growth	0	Count	1			1
			Expected Count	1.0			1.0
			% within Growth	100.0%			100.0%
	Total		Count	1			1
			Expected Count	1.0			1.0
			% within Growth	100.0%			100.0%
Yes	Growth	Yes	Count		260	895	1155
			Expected Count		253.7	901.3	1155.0
			% within Growth		22.5%	77.5%	100.0%
		No	Count		95	312	407
			Expected Count		89.4	317.6	407.0
			% within Growth		23.3%	76.7%	100.0%
		3	Count		14	104	118
			Expected Count		25.9	92.1	118.0
			% within Growth		11.9%	88.1%	100.0%
	Total		Count		369	1311	1680
			Expected Count		369.0	1311.0	1680.0
			% within Growth		22.0%	78.0%	100.0%
No	Growth	Yes	Count		582	1894	2476
			Expected Count		547.2	1928.8	2476.0
			% within Growth		23.5%	76.5%	100.0%
		No	Count		105	473	578
			Expected Count		127.7	450.3	578.0
			% within Growth		18.2%	81.8%	100.0%
		3	Count		35	178	213
			Expected Count		47.1	165.9	213.0
			% within Growth		16.4%	83.6%	100.0%
	Total		Count		722	2545	3267
			Expected Count		722.0	2545.0	3267.0
			% within Growth		22.1%	77.9%	100.0%
Total	Growth	0	Count	1	0	0	1
			Expected Count	.0	.2	.8	1.0
			% within Growth	100.0%	.0%	.0%	100.0%
		Yes	Count	0	842	2789	3631

		Expected Count	.7	800.6	2829.7	3631.0
		% within Growth	.0%	23.2%	76.8%	100.0%
	No	Count	0	200	785	985
		Expected Count	.2	217.2	767.6	985.0
		% within Growth	.0%	20.3%	79.7%	100.0%
	3	Count	0	49	282	331
		Expected Count	.1	73.0	257.9	331.0
		% within Growth	.0%	14.8%	85.2%	100.0%
Total		Count	1	1091	3856	4948
		Expected Count	1.0	1091.0	3856.0	4948.0
		% within Growth	.0%	22.0%	77.9%	100.0%

Chi Square Tests

Teachers Two Years or More		Value	df	Asymp. Sig. (2-sided)
0	Pearson Chi-Square	.[a]		
	N of Valid Cases	1		
Yes	Pearson Chi-Square	7.674[b]	2	.022
	Likelihood Ratio	8.715	2	.013
	Linear-by-Linear Association	3.062	1	.080
	N of Valid Cases	1680		
No	Pearson Chi-Square	12.012[c]	2	.002
	Likelihood Ratio	12.500	2	.002
	Linear-by-Linear Association	11.381	1	.001
	N of Valid Cases	3267		
Total	Pearson Chi-Square	4962.601[d]	6	.000
	Likelihood Ratio	34.590	6	.000
	Linear-by-Linear Association	15.026	1	.000
	N of Valid Cases	4948		

a. No statistics are computed because Growth and Gifted are constants.

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 25.92.

c. 0 cells (.0%) have expected count less than 5. The minimum expected count is 47.07.

d. 6 cells (50.0%) have expected count less than 5. The minimum expected count is .00.

This is a quantitative cross sectional survey design dual method study. As a result, survey data about arts methods was collected from teachers working at arts magnet

schools and teachers working at non-arts schools to further explore the relationship between teacher arts integration practices and student achievement in relation to research questions one: What is the relationship between arts integration and achievement?

The Pearson chi square test was used to test the significance level of the relationships found between teacher practice and reading growth of teachers who worked in arts and non-arts schools. The narrative of the results is discussed in this section, and the cross tabulations and chi square tests for the survey results presented are in Appendix C in numerical order.

Research Question One

What is the relationship between arts integration and achievement?

Null Hypothesis

H1o: There is no relationship between arts integration and student achievement

Alternative Non-Directional (1) Hypothesis

H1ı There is a relationship between arts integration and achievement.

Arts Survey Results – Teacher Use of Arts Integration Methods Arts and Non-Arts Schools

Have you been a classroom teacher in an arts magnet school for two or more years?

Table 4.2 shows that 87% of the teachers in the art schools had been in an arts magnet school more than two years and 100% of the teachers in a non-arts school had not worked in an arts magnet school for two or more years.

Table 4.2

Survey Question 1 Classroom Teacher in Arts School for Two or More Years

Arts and Non-Arts	Yes	No	% Yes	% No
Arts	20	3	87	13
Non-Arts	0	44	0	100
Total	20	47	30	70

Did you participate in any arts workshops during the 2010-2011 school year?

Table 4.3 shows that 70% of teachers in the arts schools attended an arts workshop in 2010-2011 while 10% of the teachers in the non-arts schools attended an arts workshop in 2010-2011. Attendance at any arts workshop within the time period equated to a yes.

Table 4.3

Survey Question 2 Did You Participate in an Arts Workshop in 2010-2011

Arts and Non-Arts	Yes	No	% Yes	% No
Arts	16	7	70	30
Non-Arts	4	40	10	90
Total	20	47	30	70

What was the focus of the arts workshop? Choose One

Tables 4.4 and 4.5 show the focus of the arts workshops attended by teachers in arts and non-arts schools. Most often the focus of the workshop was in the area of visual arts, 44% for teachers in the arts schools and 5% for teachers in the non-arts schools.

Table 4.4

Survey Question 3 Focus of the Arts Workshop Arts Schools

Arts	Yes	No	% Yes	% No
Visual	10	13	44	56
Performing	7	16	30	70
Literary	7	16	30	70
Technology	8	15	35	65
Combination	9	14	39	61

Table 4.5

Survey Question 3 Focus of the Arts Workshop Non-Arts Schools

Non Arts	Yes	No	% Yes	% No
Visual	2	42	5	95
Performing	2	42	5	95
Literary	1	43	2	98
Technology	1	43	2	98
Combination	0	44	0	100

The cross tabulation charts that correlate to the following discussions are in Appendix C in order of discussion. The following approach was used to determine more or less effective, slightly more or less effective, or neither more or less affective: if the difference was at or above 4% then more or less effective applied, if the difference was greater than 1% but less than 4% then slightly more or less effective applied, if the difference was less than 1% then neither less or more effective applied.

A three-way cross tabulation was done to analyze the relationship between teacher participation in visual arts workshops, and student growth in reading. In the arts schools, 391 students out of 527 students or 74% of the students with a teacher who attended a visual arts workshop showed reading growth and in the non-arts schools, 110

students out of 136 students or 81% of the students with a teacher who attended a visual arts workshop showed reading growth. In this sample, the number of students who showed growth in the arts schools was slightly less than the expected count (391 actual, 405 expected) indicating that teacher participation at a visual arts workshop was slightly less effective for those students. The number of students who showed growth in the non-arts schools was slightly more than the expected count (110 actual, 107 expected) indicating that teacher participation at a visual arts workshop was slightly more effective for those students.

A significant difference was found between reading growth, teachers attending a visual arts workshop, and teachers in the arts schools (chi square = 18.619, df = 2, p = .000). Using the cut-off point 0.05, .000 is less than 0.05. A significant difference was not found between reading growth, teachers attending a visual arts workshop, and teachers in the non-arts schools (chi square = 1.286, df = 2, p = .526). Using the cut-off point 0.05, .526 is greater than 0.05.

A three-way cross tabulation was done to analyze the relationship between teacher participation in performing arts workshops and student growth in reading. In the arts schools 163 students out of 210 students or 78% of the students with a teacher who attended a performing arts workshop showed reading growth and in the non-arts schools 114 students out of 139 students or 82% of the students with a teacher who attended a performing arts workshop showed reading growth. In this sample, the number of students who showed growth in the arts schools was less than the expected count (163 actual, 176 expected) indicating that teacher participation at a performing arts workshop was less effective for those students. The number of students who showed growth in the non-arts

schools was more than the expected count (114 actual, 109 expected) indicating that teacher participation at a performing arts workshop was more effective for those students.

A significant difference was found between reading growth, teachers attending a performing arts workshop, and teachers in the arts schools (chi square = 60.478, df = 2, p = .000). Using the cut-off point 0.05, .000 is less than 0.05. A significant difference was not found between reading growth, teachers attending a performing arts workshop, and teachers in non-arts schools (chi square = 2.382, df = 2, p = .304). Using the cut-off point 0.05, .304 is greater than 0.05.

A three-way cross tabulation was done to analyze the relationship between teacher participation in literary arts workshops and student growth in reading. In the arts schools 173 students out of 217 students or 80% of the students with a teacher who attended a literary arts workshop showed reading growth and in the non-arts schools 162 students out of 204 students or 79% of the students with a teacher who attended a literary arts workshop showed reading growth. In this sample, the number of students who showed growth in the arts schools was slightly more than the expected count (173 actual, 167 expected) indicating that teacher participation at a literary arts workshop was slightly more effective for those students. The number of students who showed growth in the non-arts schools was similar to the expected count (162 actual, 162.9 expected) indicating that teacher participation at a literary arts workshop was neither more or less effective for those students.

A significant difference was found between reading growth, teachers attending a literary arts workshop, and teachers in the arts schools (chi square = 10.103, df = 2, p = .006). Using the cut-off point 0.05, .006 is less than 0.05. A significant difference was not

found between reading growth, teachers attending a literary arts workshop, and teachers in the non-arts schools (chi square = 1.143, df = 2, p = .565). Using the cut-off point 0.05, .565 is greater than 0.05.

A three-way cross tabulation was done to analyze the relationship between teacher participation in technical arts workshops and student growth in reading. In the arts schools 391 students out of 516 students or 76% of the students with a teacher who attended a technical arts workshop showed reading growth and in the non-arts schools 43 students out of 46 students or 93% of the students with a teacher who attended a technical arts workshop showed reading growth. In this sample, the number of students who showed growth in the arts schools was slightly more than the expected count (391 actual, 384 expected) indicating that teacher participation at a technical arts workshop was slightly more effective for those students. The number of students who showed growth in the non-arts schools was slightly more than the expected count (43 actual, 38 expected) indicating that teacher participation at a technical arts workshop was slightly more effective for those students.

A significant difference was not found between reading growth, teachers attending a technical arts workshop, and teachers in the arts schools (chi square = 1.910, df = 2, p = .385). Using the cut-off point 0.05, .385 is greater than 0.05. A significant difference was not found between reading growth, teachers attending a technical arts workshop, and teachers in the non-arts schools (chi square = 5.438, df = 2, p = .066). Using the cut-off point 0.05, .066 is greater than 0.05.

Do you use the following art forms in your classroom?

Tables 4.6 and 4.7 show the teacher use of art forms in arts and non-arts schools.

Table 4.6

Survey Question 4 Do You Use Art Forms - Arts Schools

Arts	Yes	No	% Yes	% No
Dance	10	13	44	56
Theater	7	16	30	70
Music	7	16	30	70
Visual	8	15	35	65
Technology	9	14	39	61

Table 4.7

Survey Question 4 Do You Use Art Forms - Non-Arts Schools

Non-Arts	Yes	No	% Yes	% No
Dance	2	42	5	95
Theater	2	42	5	95
Music	1	43	2	98
Visual	1	43	2	98
Technology	0	44	0	100

A three-way cross tabulation was done to analyze the relationship between teacher use of dance as an art form, and student growth in reading. In the arts schools 280 students out of 371 students or 75% of the students with a teacher who used dance as an art form showed reading growth and in the non-arts schools 304 students out of 388 students or 78% of the students with a teacher who used dance as an art form showed reading growth. In this sample, the number of students who showed growth in the arts schools was slightly more than the expected count (280 actual, 276 expected) indicating

that the use of dance as an art form was slightly more effective for those students. The number of students who showed growth in the non-arts schools was slightly less than the expected count (304 actual, 310 expected) indicating that the use of dance as an art form was slightly less effective for those students.

A significant difference was not found between reading growth, and teachers using dance as an art form, and teachers in the arts schools (chi square = .969, df = 2, p = .616). Using the cut-off point 0.05, .616 is greater than 0.05. A significant difference was not found between reading growth, teachers using dance as an art form, and teachers in the non-arts schools (chi square = 3.648, df = 2, p = .161). Using the cut-off point 0.05, .161 is greater than 0.05.

A three-way cross tabulation was done to analyze the relationship between teacher use of theater as an art form and student growth in reading. In the arts schools 455 students out of 604 students or 75% of the students with a teacher who used theater as an art form showed reading growth and in the non-arts schools 695 students out of 865 students or 80% of the students with a teacher who used theater as an art form showed reading growth. In this sample, the number of students who showed growth in the arts schools was similar to the expected count (455 actual, 459 expected) indicating that the use of theater as an art form was neither more or less effective for those students. The number of students who showed growth in the non-arts schools was slightly less than the expected count (695 actual, 713 expected) indicating that the use of theater as an art form was slightly less effective for those students.

A significant difference was found between reading growth, teachers using theater as an art form, and teachers in the arts schools (chi square = 12.077, df = 2, p = .002). Using

the cut-off point 0.05, .002 is less than 0.05. A significant difference was not found between reading growth, teachers using theater as an art form, and teachers in the non-arts schools (chi square = 5.667, df = 2, p = .059). Using the cut-off point 0.05, .059 is greater than 0.05.

A three-way cross tabulation was done to analyze the relationship between teacher use of music as an art form and student growth in reading. In the arts schools 822 students out of 1,122 students or 73% of the students with a teacher who used music as an art form showed reading growth and in the non-arts schools 1,247 students out of 1,544 students or 81% of the students with a teacher who used music as an arts form showed reading growth. In this sample, the number of students who showed growth in the arts schools was similar to the expected count (822 actual, 828 expected) indicating that the use of music as an art form was neither more or less effective for those students. The number of students who showed growth in the non-arts schools was slightly more than the expected count (1,247 actual, 1,233 expected) indicating that the use of music as an art form was slightly more effective for those students.

A significant difference was not found between reading growth, teachers using music as an art form, and teachers in the arts schools (chi square = 1.079, df = 2, p = .583). Using the cut-off point 0.05, .583 is greater than 0.05. A significant difference was found between reading growth, teachers using music as an art form, and teachers in the non-arts schools (chi square = 10.044, df = 2, p = .007). Using the cut-off point 0.05, .007 is less than 0.05.

A three-way cross tabulation was done to analyze the relationship between

teacher use of visual arts as an art form and student growth in reading. In the arts schools 1,155 students out of 1,562 students or 74% of the students with a teacher who used visual arts as an art form showed reading growth and in the non-arts schools 1,590 students out of 1,961 students or 81% of the students with a teacher who used visual arts as an art form showed reading growth. In this sample, the number of students who showed growth in the arts schools was equal to the expected count (1,155 actual, 1,155 expected) indicating that the use of visual arts as an art form is neither more or less effective for those students. The number of students who showed growth in the non-arts schools was similar to the expected count (1590 actual, 1590.3 expected) indicating that the use of visual arts as an art form was neither more or less effective for those students.

A significant difference was not found between reading growth, teachers using visual arts as an art form, and teachers in arts schools, because the number of students who showed growth was equal to the expected count, As a result, no p-value was calculated. A significant difference was not found between reading growth, teachers using visual arts as an art form, and teachers in non-arts schools (chi square = .175, df = 2, p = .916). Using the cut-off point 0.05, .916 is greater than 0.05.

A three-way cross tabulation was done to analyze the relationship between teacher use of technical arts as an art form and student growth in reading. In the arts schools 1,103 students out of 1,491 students or 74% of the students with a teacher who used technical arts as an arts form showed reading growth and in the non-arts schools 1,508 students out of 1,848 students or 82% of the students with a teacher who used technical arts as an art form showed reading growth. In this sample, the number of students who showed growth in the arts schools was similar to the expected count (1,103

actual, 1,102 expected) indicating that the use of technical arts as an art form was neither more or less effective for those students. The number of students who showed growth in the non-arts schools was slightly more than the expected count (1,508 actual, 1,493 expected) indicating that the use of technical arts as an art form was slightly more effective for those students.

A significant difference was not found between reading growth, teachers using technical arts as an art form, and teachers in the arts schools (chi square = .092, df = 2, p = .955). Using the cut-off point 0.05, .955 is greater than 0.05. A significant difference was not found between reading growth, teachers using technical arts as an art form, and teachers in non-arts schools (chi square = 1.718, df = 2, p = .424). Using the cut-off point 0.05, .424 is greater than 0.05.

Do you use the following arts activities during instruction?

Table 4.8 and 4.9 show the data collected from arts and non-arts teachers and the areas selected most and least often. Listening to music was selected as an arts activity used most often by teachers in the arts schools while technical arts activities was selected most often by teachers in the non-arts schools

Table 4.8

Survey Question 5 Do You Use Arts Activities - Arts Schools

Arts	Yes	No	% Yes	% No
Listening to Music	20	3	87	13
Composing Music	8	15	35	65
Dance/Movement	9	14	39	61
Plays/Performances	17	6	74	26
Drawing/Painting/Illustrating	18	5	78	22
Creative Writing	17	6	74	26
Technical	17	6	74	26

Table 4.9

Survey Question 5 Do You Use Arts Activities - Non-Arts Schools

Non Arts	Yes	No	% Yes	% No
Listening to Music	31	13	70	30
Composing Music	0	44	0	100
Dance/Movement	17	27	39	61
Plays/Performances	24	20	55	45
Drawing/Painting/Illustrating	33	11	75	25
Creative Writing	30	14	68	32
Technical	39	5	89	11

A three-way cross tabulation was done to analyze the relationship between teachers who used listening to music arts activities and student growth in reading. In the arts schools 975 students out of 1,325 students or 74% of the students with a teacher who used listening to music arts activities showed reading growth and in the non-arts schools 1,927 students out of 2,379 students or 81% of the students with a teacher who used listening to music arts activities showed reading growth. In this sample, the number of students who showed growth in the arts schools was similar to the expected count (975 actual, 982 expected) indicating that the use of listening to music as an arts activity was

neither more or less effective for those students. The number of students who showed growth in the non-arts schools was less than the expected count (1,927 actual, 2,379 expected) indicating that the use of listening to music as an arts activity was less effective for those students.

A significant difference was not found between reading growth, teachers using listening to music arts activities, and teachers in the arts schools (chi square = 1.536, df = 2, p = .464). Using the cut-off point 0.05, .464 is greater than 0.05. A significant difference was not found between reading growth, teachers using listening to music arts activities, and teachers in non-arts schools (chi square = 5.631, df = 2, p = .060). Using the cut-off point 0.05, .060 is greater than 0.05.

A three-way cross tabulation was done to analyze the relationship between teachers who used composing arts activities and student growth in reading. In the arts schools 484 students out of 683 students or 71% of the students with a teacher who used composing arts activities showed reading growth and in the non-arts schools there were no teachers who used compose as an arts activity. In this sample, the number of students who showed growth in the arts schools was slightly less than the expected count (484 actual, 495 expected) indicating that the use of compose as an arts activity was slightly less effective for those students.

A significant difference was found between reading growth, teachers used composing arts activities, and teachers in the arts schools (chi square = 11.947, df = 2, p = .003). Using the cut-off point 0.05, .003 is less than 0.05.

A three-way cross tabulation was done to analyze the relationship between teachers who used dance arts activities and student growth in reading. In the arts schools 327

students out of 430 students or 76% of the students with a teacher who used dance arts activities showed reading growth and in the non-arts schools 901 students out of 1,111 students or 81% of the students with a teacher who used dance arts activities showed reading growth. In this sample, the number of students who showed growth in the arts schools was slightly more than the expected count (327 actual, 323 expected) indicating that the use of dance as an arts activity was slightly more effective for those students. The number of students who showed growth in the non-arts schools was similar to the expected count (901 actual, 905 expected) indicating that the use of dance as an arts activity was neither more or less effective for those students.

A significant difference was not found between reading growth, teachers who used dance arts activities, and teachers in the arts schools (chi square = 4.179, df = 2, p = .124). Using the cut-off point 0.05, .124 is greater than 0.05. A significant difference was not found between reading growth, teachers who used dance arts activities, and teachers in non-arts schools (chi square = .803, df = 2, p = .669). Using the cut-off point 0.05, .669 is greater than 0.05.

A three-way cross tabulation was done to analyze the relationship between teachers who used plays and performances arts activities and student growth in reading. In the arts schools 684 students out of 920 students or 74% of the students with a teacher who used plays and performances arts activities showed reading growth and in the non-arts schools 1,164 students out of 1,447 students or 80% of the students with a teacher who used plays and performances arts activities showed reading growth. In this sample, the number of students who showed growth in the arts schools was slightly less than the expected count (684 actual, 697 expected) indicating that the use of plays and

performances as an arts activity was slightly less effective for those students. The number of students who showed growth in the non-arts schools was slightly less than the expected count (1,164 actual, 1,172 expected) indicating that the use of plays and performances as an arts activity was slightly less effective for those students.

A significant difference was found between reading growth, teachers who used plays and performances arts activities, and teachers in the arts schools (chi square = 21.615, df = 2, p = .000). Using the cut-off point 0.05, .000 is less than 0.05. A significant difference was not found between reading growth, teachers who used plays and performance activities, and teachers in non-arts schools (chi square = .730, df = 2, p = .694). Using the cut-off point 0.05, .694 is greater than 0.05.

A three-way cross tabulation was done to analyze the relationship between teachers who used drawing and painting arts activities and student growth in reading. In the arts schools 732 students out of 983 students or 74% of the students with a teacher who used drawing and painting arts activities showed reading growth and in the non-arts schools 1,898 students out of 2,345 students or 81% of the students with a teacher who used drawing and painting arts activities showed reading growth. In this sample, the number of students who showed growth in the arts schools was slightly less than the expected count (732 actual, 742 expected) indicating that the use of drawing and painting as an arts activity was slightly less effective for those students. The number of students who showed growth in the non-arts schools was similar to the expected count (1,898 actual, 1,892 expected) indicating that the use of drawing and painting as an arts activity was neither more or less effective for those students.

A significant difference was found between reading growth, teachers who used drawing and painting arts activities, and teachers in the arts schools (chi square = 18.128, df = 2, p = .000). Using the cut-off point 0.05, .000 is less than 0.05. A significant difference was not found between reading growth, teachers who used drawing and painting activities, and teachers in non-arts schools (chi square = 3.371, df = 2, p = .185). Using the cut-off point 0.05, .185 is greater than 0.05.

A three-way cross tabulation was done to analyze the relationship between teachers who used creative writing arts activities and student growth in reading. In the arts schools 686 students out of 916 students or 75% of the students with a teacher who used creative writing arts activities showed reading growth and in the non-arts schools 1,518 students out of 1,867 students or 81% of the students with a teacher who used creative writing arts activities showed reading growth. In this sample, the number of students who showed growth in the arts schools was similar to the expected count (686 actual, 690 expected) indicating that the use of creative writing as an arts activity was neither more or less effective for those students. The number of students who showed growth in the non-arts schools was similar to the expected count (1,518 actual, 1,508 expected) indicating that the use of creative writing as an arts activity was neither more or less effective for those students.

A significant difference was found between reading growth, teachers who used creative writing arts activities, and teachers in the arts schools (chi square = 13.895, df = 2, p = .001). Using the cut-off point 0.05, .001 is less than 0.05. A significant difference was not found between reading growth, teachers who used creative writing activities, and

teachers in non-arts schools (chi square = .881, df = 2, p = .644). Using the cut-off point 0.05, .644 is greater than 0.05.

A three-way cross tabulation was done to analyze the relationship between teachers who used technical arts activities and student growth in reading. In the arts schools 850 students out of 1,132 students or 75% of the students with a teacher who used technical arts activities showed reading growth and in the non-arts schools 2,206 students out of 2,729 students or 81% of the students with a teacher who used technical arts activities showed reading growth. In this sample, the number of students who showed growth in the arts schools was slightly more than the expected count (850 actual, 838 expected) indicating that the use of technology as an arts activity was slightly more effective for those students. The number of students who showed growth in the non-arts schools was similar to the expected count (2,206 actual, 2,210 expected) indicating that the use of technology as an arts activity was neither more or less effective for those students.

A significant difference was not found between reading growth, teachers who used technology arts activities, and teachers in the arts schools (chi square = 3.050, df = 2, p = .218). Using the cut-off point 0.05, .218 is less than 0.05. A significant difference was not found between reading growth, teachers who used technology activities, and teachers in non-arts schools (chi square = 1.451, df = 2, p = .484). Using the cut-off point 0.05, .484 is greater than 0.05.

How often do you use the following arts activities during instruction?

Table 4.10 and 4.11 shows the arts activities used by teachers in an arts school and non-arts school in time increments.

Table 4.10

Survey Question 6 How Often do You Use Arts Activities - Arts School

Arts	Daily	Weekly	Monthly	Never
Listening to Music	7	8	3	5
Composing Music	0	2	4	17
Dance/Movement	0	7	4	12
Plays/Performances	0	2	14	7
Drawing/Painting/Illustrating	4	11	5	3
Creative Writing	4	11	3	5
Technology	4	10	4	5

Table 4.11

Survey Question 6 How Often do You Use Arts Activities - Non-Arts School

Non Arts	Daily	Weekly	Monthly	Never
Listening to Music	6	16	13	9
Composing Music	0	0	1	43
Dance/Movement	5	11	7	21
Plays/Performances	1	2	22	19
Drawing/Painting/Illustrating	6	14	17	7
Creative Writing	5	12	13	14
Technology	16	13	11	4

A three-way cross tabulation was done to analyze the relationship between the frequency that teachers used listening to music arts activities and student growth in reading.

In the arts schools 149 students out of 194 students or 77% of the students who had a teacher that daily used listening to music arts activities showed reading growth and in the non-arts schools 361 students out of 443 students or 81% of the students who had a teacher that daily used listening to music arts activities showed reading growth. In this sample, the number of students who showed growth in the arts schools was slightly less than the expected count (149 actual, 153 expected) indicating that the daily use of listening to music arts activities was slightly less effective for those students. The number of students who showed growth in the non-arts schools was slightly more than the expected count (361 actual, 353 expected) indicating that the daily use of listening to music arts activities was slightly more effective for those students.

In the arts schools 384 students out of 518 students or 74% of the students who had a teacher that weekly used listening to music arts activities showed reading growth and in the non-arts schools 865 students out of 1,072 students or 81% of the students who had a teacher that weekly used listening to music arts activities showed reading growth. In this sample, the number of students who showed growth in the arts schools was similar to the expected count (384 actual, 382 expected) indicating that the weekly use of listening to music arts activities was neither more or less effective for those students. The number of students who showed growth in the non-arts schools was similar to the expected count (865 actual, 868 expected) indicating that the weekly use of listening to music arts activities was neither more or less effective for those students.

In the arts schools 256 students out of 346 students or 74% of the students who had a teacher that monthly used listening to music arts activities showed reading growth and in the non-arts schools 925 students out of 1,155 students or 80% of the students who

had a teacher that monthly used listening to music arts activities showed reading growth. In this sample, the number of students who showed growth in the arts schools was slightly more than the expected count (256 actual, 252 expected) indicating that the monthly use of listening to music arts activities was slightly more effective for those students. The number of students who showed growth in the non-arts schools was slightly less than the expected count (925 actual, 936 expected) indicating that the monthly use of listening to music arts activities was slightly less effective for those students.

In the arts schools 366 students out of 504 students or 73% of the students who had a teacher that never used listening to music arts activities showed reading growth and in the non-arts schools 325 students out of 384 students or 85% of the students who had a teacher that never used listening to music arts activities showed reading growth. In this sample, the number of students who showed growth in the arts schools was similar to the expected count (366 actual, 366.4 expected) indicating that never using listening to music arts activities was neither more or less effective for those students. The number of students who showed growth in the non-arts schools was slightly more than the expected count (325 actual, 317 expected) indicating that never using listening to music arts activities was slightly more effective for those students.

A significant difference was found between reading growth, frequency of using listening to music arts activities, and teachers in the arts schools (chi square = 16.459, df = 6, p = .011). Using the cut-off point 0.05, .011 is less than 0.05. A significant difference was not found between reading growth, frequency of listening to music arts activities, and teachers in non-arts schools (chi square = 7.782, df = 6, p = .254). Using the cut-off point 0.05, .254 is greater than 0.05.

A three-way cross tabulation was done to analyze the relationship between the frequency that teachers used composing music arts activities and student growth in reading.

No teachers in arts or non-arts schools used composing music arts activities daily.

In the arts schools 46 students out of 67 students or 69% of the students who had a teacher that weekly used composing music arts activities showed reading growth. No teachers in the non-arts schools used composing music weekly. In this sample, the number of students who showed growth in the arts schools was less than the expected count (46 actual, 51 expected) indicating that the weekly use of composing music arts activities was less effective for those students.

In the arts schools 204 students out of 272 students or 75% of the students who had a teacher that monthly used composing music arts activities showed reading growth and in the non-arts schools 52 students out of 65 students or 80% of the students who had a teacher that monthly used composing music arts activities showed reading growth. In this sample, the number of students who showed growth in the arts schools was slightly more than the expected count (204 actual, 199 expected) indicating that the monthly use of composing music arts activities was slightly more effective for those students. The number of students who showed growth in the non-arts schools was slightly less than the expected count (52 actual, 54 expected) indicating that the monthly use of composing music arts activities was slightly less effective for those students.

In the arts schools 905 students out of 1,223 students or 74% of the students who had a teacher that never used composing music arts activities showed reading growth and in the non-arts schools 2,424 students out of 2,989 students or 81% of the students who

had a teacher that never used composing music arts activities showed reading growth. In this sample, the number of students who showed growth in the arts schools was similar to the expected count (905 actual, 904 expected) indicating that never using composing music arts activities was neither more or less effective for those students. The number of students who showed growth in the non-arts schools was slightly more than the expected count (361 actual, 353 expected) indicating that never using composing music arts activities was slightly more effective for those students.

A significant difference was not found between reading growth, frequency of composing music arts activities, and teachers in the arts schools (chi square = 2.917, df = 4, p = .572). Using the cut-off point 0.05, .572 is less than 0.05. A significant difference was not found between reading growth, frequency of composing arts activities, and teachers in non-arts schools (chi square = 1.287, df = 2, p = .525). Using the cut-off point 0.05, .525 is greater than 0.05.

A three-way cross tabulation was done to analyze the relationship between the frequency that teachers used dance arts activities and student growth in reading.

In the arts schools no teachers used dance arts activities daily. In the non-arts schools 178 students out of 215 students or 83% of the students who had a teacher that daily used dance arts activities showed reading growth. The number of students who showed growth in the non-arts schools was similar to the expected count (178 actual, 178.9 expected) indicating that the daily use of dance arts activities was neither more or less effective for those students.

In the arts schools 157 students out of 214 students or 73% of the students who had a teacher that weekly used dance arts activities showed reading growth and in the

non-arts schools 550 students out of 675 students or 81% of the students who had a teacher that weekly used dance arts activities showed reading growth. In this sample, the number of students who showed growth in the arts schools was less than the expected count (157 actual, 171 expected) indicating that the weekly use of dance arts activities was less effective for those students. The number of students who showed growth in the non-arts schools was similar to the expected count (550 actual, 546 expected) indicating that the weekly use of dance arts activities was neither more or less effective for those students.

In the arts schools 323 students out of 419 students or 77% of the students who had a teacher that monthly used dance arts activities showed reading growth and in the non-arts schools 448 students out of 547 students or 82% of the students who had a teacher that monthly used dance arts activities showed reading growth. In this sample, the number of students who showed growth in the arts schools was slightly more than the expected count (323 actual, 305 expected) indicating that the monthly use of dance arts activities was slightly more effective for those students. The number of students who showed growth in the non-arts schools was slightly more than the expected count (448 actual, 443 expected) indicating that the monthly use of dance arts activities was slightly more effective for those students.

In the arts schools 675 students out of 929 students or 73% of the students who had a teacher that never used dance arts activities showed reading growth and in the non-arts schools 1300 students out of 1617 students or 80% of the students who had a teacher that never used dance arts activities showed reading growth. In this sample, the number of students who showed growth in the arts schools was similar to the expected count (675

actual, 677 expected) indicating that never using dance arts activities was neither more or less effective for those students. The number of students who showed growth in the non-arts schools was similar to the expected count (1300 actual, 1307 expected) indicating that never using dance arts activities was neither more or less effective for those students.

A significant difference was found between reading growth, frequency of dance arts activities, and teachers in the arts schools (chi square = 27.501, df = 4, p = .000). Using the cut-off point 0.05, .000 is less than 0.05. A significant difference was not found between reading growth, frequency of dance arts activities, and teachers in non-arts schools (chi square = 3.610, df = 6, p = .729). Using the cut-off point 0.05, .729 is greater than 0.05.

A three-way cross tabulation was done to analyze the relationship between the frequency that teachers used plays and performance arts activities and student growth in reading.

No teachers used plays and performance arts activities daily in the arts schools. In the non-arts schools 60 students out of 79 students or 76% of the students who had a teacher that daily used plays and performance arts activities showed reading growth. The number of students who showed growth in the non-arts schools was less than the expected count (60 actual, 67 expected) indicating that the daily use of plays and performances arts activities was less effective for those students.

In the arts schools 46 students out of 67 students or 69% of the students who had a teacher that weekly used plays and performance arts activities showed reading growth and in the non-arts schools 121 students out of 169 students or 72% of the students who had a teacher that weekly used plays and performance arts activities showed reading

growth. In this sample, the number of students who showed growth in the arts schools was less than the expected count (46 actual, 51 expected) indicating that the weekly use of plays and performance arts activities was less effective for those students. The number of students who showed growth in the non-arts schools was less than the expected count (121 actual, 135 expected) indicating that the weekly use of plays and performance arts activities was less effective for those students.

In the arts schools 524 students out of 691 students or 76% of the students who had a teacher that monthly used plays and performance arts activities showed reading growth and in the non-arts schools 983 students out of 1189 students or 83% of the students who had a teacher that monthly used plays and performance arts activities showed reading growth. In this sample, the number of students who showed growth in the arts schools was similar to the expected count (524 actual, 528 expected) indicating that the monthly use of plays and performance arts activities was neither more or less effective for those students. The number of students who showed growth in the non-arts schools was slightly more than the expected count (983 actual, 965 expected) indicating that the monthly use of plays and performance arts activities was slightly more effective for those students.

In the arts schools 585 students out of 804 students or 73% of the students who had a teacher that never used plays and performances arts activities showed reading growth and in the non-arts schools 1,312 students out of 1,617 students or 79% of the students who had a teacher that never used plays and performance arts activities showed reading growth. In this sample, the number of students who showed growth in the arts schools was slightly more than the expected count (585 actual, 575 expected) indicating

that never using plays and performance arts activities was slightly more effective for those students. The number of students who showed growth in the non-arts schools was similar to the expected count (1,312 actual, 1,307 expected) indicating that never using plays and performance arts activities was neither more or less effective for those students.

A significant difference was found between reading growth, frequency of plays and performance arts activities, and teachers in the arts schools (chi square = 27.066, df = 4, p = .000). Using the cut-off point 0.05, .000 is less than 0.05. A significant difference was found between reading growth, frequency of plays and performance activities, and teachers in non-arts schools (chi square = 17.001, df = 6, p = .009). Using the cut-off point 0.05, .009 is less than 0.05.

A three-way cross tabulation was done to analyze the relationship between the frequency that teachers used drawing, painting, and illustrating activities and student growth in reading.

In the arts schools 118 students out of 154 students or 77% of the students who had a teacher that daily used drawing, painting, and illustrating arts activities showed reading growth and in the non-arts schools 200 students out of 227 students or 88% of the students who had a teacher that daily used drawing, painting, and illustrating arts activities showed reading growth. In this sample, the number of students who showed growth in the arts schools was slightly more than the expected count (118 actual, 114 expected) indicating that the daily use of drawing, painting, and illustrating arts activities was slightly more effective for those students. The number of students who showed growth in the non-arts schools was more than the expected count (200 actual, 183

expected) indicating that the daily use of drawing, painting, and illustrating arts activities was more effective for those students.

In the arts schools 531 students out of 711 students or 75% of the students who had a teacher that weekly used drawing, painting, and illustrating arts activities showed reading growth and in the non-arts schools 771 students out of 939 students or 82% of the students who had a teacher that weekly used drawing, painting, and illustrating arts activities showed reading growth. In this sample, the number of students who showed growth in the arts schools was slightly less than the expected count (531 actual, 542 expected) indicating that the weekly use of drawing, painting, and illustrating arts activities was slightly less effective for those students. The number of students who showed growth in the non-arts schools was slightly more than the expected count (771 actual, 761 expected) indicating that the weekly use of drawing, painting, and illustrating arts activities was slightly more effective for those students.

In the arts schools 197 students out of 280 students or 70% of the students who had a teacher that monthly used drawing, painting, and illustrating arts activities showed reading growth and in the non-arts schools 1,293 students out of 1,641 students or 79% of the students who had a teacher that monthly used drawing, painting, and illustrating arts activities showed reading growth. In this sample, the number of students who showed growth in the arts schools was slightly less than the expected count (197 actual, 204 expected) indicating that the monthly use of drawing, painting, and illustrating arts activities was slightly less effective for those students. The number of students who showed growth in the non-arts schools was slightly less than the expected count (1,293

actual, 1,321 expected) indicating that the daily use of drawing, painting, and illustrating arts activities was slightly less effective for those students.

In the arts schools 309 students out of 417 students or 74% of the students who had a teacher that never used drawing, painting, and illustrating arts activities showed reading growth and in the non-arts schools 212 students out of 247 students or 86% of the students who had a teacher that never used drawing, painting, and illustrating arts activities showed reading growth. In this sample, the number of students who showed growth in the arts schools was more than the expected count (309 actual, 294 expected) indicating that never using drawing, painting, and illustrating arts activities was more effective for those students. The number of students who showed growth in the non-arts schools was similar to the expected count (1,312 actual, 1,307 expected) indicating that never using drawing, painting, and illustrating arts activities was neither more or less effective for those students.

A significant difference was found between reading growth, frequency of drawing, painting, and illustrating arts activities, and teachers in the arts schools (chi square = 26.346, df = 6, p = .000). Using the cut-off point 0.05, .000 is less than 0.05. A significant difference was found between reading growth, frequency of drawing, painting, and illustrating activities, and teachers in non-arts schools (chi square = 26.835, df = 6, p = .000). Using the cut-off point 0.05, .000 is less than 0.05.

A three-way cross tabulation was done to analyze the relationship between the frequency that teachers used creative writing activities and student growth in reading.

In the arts schools 75 students out of 103 students or 73% of the students who had a teacher that daily used creative writing arts activities showed reading growth and in the non-arts schools 136 students out of 160 students or 85% of the students who had a teacher that daily used creative writing arts activities showed reading growth. In this sample, the number of students who showed growth in the arts schools was less than the expected count (75 actual, 79 expected) indicating that the daily use of creative writing arts activities was less effective for those students. The number of students who showed growth in the non-arts schools was slightly more than the expected count (136 actual, 134 expected) indicating that the daily use of creative writing arts activities was slightly more effective for those students.

In the arts schools 594 students out of 787 students or 75% of the students who had a teacher that weekly used creative writing arts activities showed reading growth and in the non-arts schools 407 students out of 501 students or 81% of the students who had a teacher that weekly used creative writing arts activities showed reading growth. In this sample, the number of students who showed growth in the arts schools was similar to the expected count (594 actual, 591 expected) indicating that the weekly use of creative writing arts activities was neither more or less effective for those students. The number of students who showed growth in the non-arts schools was similar to the expected count (407 actual, 404 expected) indicating that the weekly use of creative writing arts activities was neither more or less effective for those students.

In the arts schools 131 students out of 188 students or 70% of the students who had a teacher that monthly used creative writing arts activities showed reading growth and in the non-arts schools 1,039 students out of 1,286 students or 81% of the students

who had a teacher that monthly used creative writing arts activities showed reading growth. In this sample, the number of students who showed growth in the arts schools was less than the expected count (131 actual, 138 expected) indicating that the monthly use of creative writing arts activities was less effective for those students. The number of students who showed growth in the non-arts schools was similar to the expected count (1,039 actual, 1,031 expected) indicating that the monthly use of creative writing arts activities was neither more or less effective for those students.

In the arts schools 355 students out of 484 students or 73% of the students who had a teacher that never used creative writing arts activities showed reading growth and in the non-arts schools 894 students out of 1,107 students or 81% of the students who had a teacher that never used creative writing arts activities showed reading growth. In this sample, the number of students who showed growth in the arts schools was slightly more than the expected count (355 actual, 345 expected) indicating that never using creative writing arts activities was slightly more effective for those students. The number of students who showed growth in the non-arts schools was slightly less than the expected count (894 actual, 905 expected) indicating that never using creative writing arts activities was slightly less effective for those students.

A significant difference was found between reading growth, frequency of creative writing arts activities, and teachers in the arts schools (chi square = 16.401, df = 6, p = .012). Using the cut-off point 0.05, .012 is less than 0.05. A significant difference was not found between reading growth, frequency of creative writing activities, and teachers in non-arts schools (chi square = 8.237, df = 6, p = .221). Using the cut-off point 0.05, .221 is greater than 0.05.

A three-way cross tabulation was done to analyze the relationship between the frequency that teachers used technical arts activities and student growth in reading.

In the arts schools 167 students out of 237 students or 70% of the students who had a teacher that daily used technical arts activities showed reading growth and in the non-arts schools 738 students out of 871 students or 84% of the students who had a teacher that daily used technical arts activities showed reading growth. In this sample, the number of students who showed growth in the arts schools was less than the expected count (167 actual, 185 expected) indicating that the daily use of technical arts activities was less effective for those students. The number of students who showed growth in the non-arts schools was slightly more than the expected count (738 actual, 717 expected) indicating that the daily use of technical arts activities was slightly more effective for those students.

In the arts schools 540 students out of 704 students or 77% of the students who had a teacher that weekly used technical arts activities showed reading growth and in the non-arts schools 967 students out of 1,242 students or 78% of the students who had a teacher that weekly used technical arts activities showed reading growth. In this sample, the number of students who showed growth in the arts schools was more than the expected count (540 actual, 519 expected) indicating that the weekly use of technical arts activities was more effective for those students. The number of students who showed growth in the non-arts schools was slightly less than the expected count (967 actual, 991 expected) indicating that the weekly use of technical arts activities was slightly less effective for those students.

In the arts schools 257 students out of 353 students or 73% of the students who had a teacher that monthly used technical arts activities showed reading growth and in the non-arts schools 581 students out of 715 students or 81% of the students who had a teacher that monthly used technical arts activities showed reading growth. In this sample, the number of students who showed growth in the arts schools was slightly more than the expected count (257 actual, 251 expected) indicating that the monthly use of technical arts activities was slightly more effective for those students. The number of students who showed growth in the non-arts schools was similar to the expected count (581 actual, 580 expected) indicating that the monthly use of technical arts activities was neither more or less effective for those students.

In the arts schools 191 students out of 268 students or 71% of the students who had a teacher that never used technical arts activities showed reading growth and in the non-arts schools 190 students out of 226 students or 84% of the students who had a teacher that never used technical arts activities showed reading growth. In this sample, the number of students who showed growth in the arts schools was slightly less than the expected count (191 actual, 198 expected) indicating that never using technical arts activities was slightly less effective for those students. The number of students who showed growth in the non-arts schools was slightly more than the expected count (190 actual, 187 expected) indicating that never using technical arts activities was neither more or less effective for those students.

A significant difference was found between reading growth, frequency of technology arts activities, and teachers in the arts schools (chi square = 23.394, df = 6, p = .001). Using the cut-off point 0.05, .001 is less than 0.05. A significant difference was

found between reading growth, frequency of technology activities, and teachers in non-arts schools (chi square = 26.644, df = 6, p = .000). Using the cut-off point 0.05, .000 is less than 0.05.

Do you give students choices in selecting an art form to use when completing a project or assignment?

Table 4.12 shows that 65% of teachers in the arts schools give student arts choices when completing a project or assignment while 41% of teachers in a non arts school give student arts choices when completing a project or assignment.

Table 4.12

Survey Question 7 Do You Give Students Choices – Arts/Non-Arts Schools

Arts/Non-Arts	Yes	No	% Yes	% No
Arts	15	8	65	35
Non-Arts	18	26	41	59
Total	33	34	49	51

If you answered yes to question 7, then what art form do students most often select? Choose One

Table 4.13 shows what choices students select most often when given a choice. In both the arts and non-arts schools students select visual arts activities most often when given the choice.

Table 4.13

Survey Question 8 What Art Form Do Students Choose Arts/Non-Arts Schools

Art Form	Arts	Non-Arts
Dance/Movement	0	1
Theater	2	2
Music	0	0
Visual	9	12
Technology	3	1
Literary	1	2

What academic area do you most integrate the arts? Choose One

Table 4.14 shows that teachers in both the arts and non-arts schools integrate the arts most often through the academic area of reading.

Table 4.14

Survey Question 9 Academic Area Integrate Arts Most Often Arts/Non-Arts Schools

Academic Area	Arts	Non Arts
Math	2	6
Science	7	8
Reading	8	16
Writing	4	9
Social Studies	2	3
None	0	1

1. In your opinion do you believe students benefit from arts integration activities?

Table 4.15 shows that 100% of the teachers in the arts schools believe students benefit by arts integration activities while 95% of the teachers in the non-arts schools believe students benefit by arts integration activities.

Table 4.15

Survey Question 10 Are There Benefits from Arts Activities – Arts/Non-Arts Schools

Arts/Non-Arts	Yes	No	% Yes	% No
Arts	23	0	100	0
Non-Arts	42	2	95	5
Total	65	2	97	3

Significance and Effect Size Relationships – Arts and Non-Arts Schools

Tables 4.16 to 4.23 show the significance and/or effect size relationships for the areas where the Pearson chi square test showed the asymp sig or p-value in the range of .05 (confidence level of 95%) to .000 (.01 confidence level of 99%). Some of the tables show actual and expected counts, the likelihood of less or more growth, and whether the data shown is significant or not. In these tables the p-value shown may be greater than .05.

Table 4.16

Growth, Actual/Expected Counts, Significant Difference

Figure	Area	Arts Non-Arts	% Growth	Actual Count	Expected Count	Less More than Expected	Less Likely More Likely to Have Growth	P-Value	Sig Diff Yes No
4.1	Growth	Arts	74	1155	1232	Less	Less Likely	.000	Yes
4.1	Growth	Non-Arts	81	2476	2397	More	More Likely	.000	Yes
4.2	Sp Ed	Arts	78	142	128	More	More Likely	.019	Yes
4.2	Sp Ed	Non-Arts	82	271	266	More	More Likely	.150	No
4.3	Ethnicity	Arts	74	1155	1232	Less	Less Likely	.000	Yes
4.3	Ethnicity	Non-Arts	81	2476	3054	More	More Likely	.000	Yes
4.4	White	Arts	74	1004	1063	Less	Less Likely	.000	Yes
4.4	White	Non-Arts	81	1857	1797	More	More Likely	.000	Yes
4.5	Black	Arts	74	49	52	Less	Less Likely	.346	No
4.5	Black	Non-Arts	76	286	282	More	More Likely	.346	No
4.6	Hispanic	Arts	73	41	54	Less	Less Likely	.000	Yes
4.6	Hispanic	Non-Arts	86	132	118	More	More Likely	.000	Yes
4.7	Asian	Arts	65	35	43	Less	Less Likely	.008	Yes
4.7	Asian	Non-Arts	84	176	167	More	More Likely	.008	Yes
4.8	FR	Arts	70	302	334	Less	Less Likely	.000	Yes
4.8	FR	Non-Arts	79	801	846	Less	Less Likely	.000	Yes
4.9	LEP	Arts	78	29	30	Less	Less Likely	.062	No
4.9	LEP	Non-Arts	82	174	184	Less	Less Likely	.000	Yes
4.10	Male	Arts	77	595	575	More	More Likely	.007	Yes
4.10	Male	Non-Arts	81	1237	1239	Less	Less Likely	.967	No
4.10	Female	Arts	71	560	579	Less	Less Likely	.007	Yes
4.10	Female	Non-Arts	81	1234	1233	More	More Likely	.967	No
4.11	Gifted	Arts	73	260	253	More	More Likely	.022	Yes
4.11	Gifted	Non-Arts	85	582	547	More	More Likely	.002	Yes

Table 4.17

Significance and Effect Size Relationships – Arts, Non-Arts, Combined Arts and Non-Arts Teachers

Arts/ Non-Arts Combined Teacher	Cross Tab	Value	df	Asymp Sig (P-Value)	Effect Size 0 (no relationship) – 1 (perfect relationship) <0.1 weak <0.3 modest <0.5 moderate <0.8 strong ≤0.8 very strong
Combined	Art/Non-Arts Teacher, Student Growth	4979.706	6	.000	1 Perfect
Arts	Sp Ed, Growth, Arts Teacher	7.948	2	.019	.07 Weak
Arts	Ethnicity, Growth, Arts Teacher	120.486	10	.000	.27 Modest
Non-Arts	Ethnicity, Growth, Non-Arts Teacher	60.518	12	.000	.14 Modest
Combined	White, Growth, Arts or Non-Arts Teacher	26.843	2	.000	.08 Weak
Combined	Hispanic, Growth, Arts or Non-Arts Teacher	18.300	2	.000	.27 Modest
Combined	Asian/Pacific Islanders, Growth & Arts or Non-Arts Teacher	9.748	2	.008	.18 Modest
Arts	F & R, Growth, Arts Teacher	26.919	2	.000	.13 Modest
Non-Arts	F & R, Growth & Non-Arts Teacher	25.861	4	.000	.09 Weak
Non-Arts	LEP, Growth, Non-Arts Teacher	23.083	4	.000	.08 Weak
Arts	Gender, Growth, Arts Teacher	9.889	2	.007	.08 Weak
Arts	Gifted, Growth, Arts Teacher	7.674	2	.022	.07 Weak
Non-Arts	Gifted, Growth, Non-Arts Teacher	12.012	2	.002	.06 Weak

Table 4.18

Arts Workshops, Growth, Actual/Expected Counts, Significant Difference Shown in Appendix C1 - C4

Appendix C	Area	Arts Non-Arts	% Growth	Actual Count	Expected Count	Less More than Expected	Less Likely More Likely to Have Growth	P-Value	Sig Diff Yes No
C1	Visual Workshop	Arts	74	391	405	Less	Less Likely	.000	Yes
C1	Visual Workshop	Non-Arts	81	110	107	More	More Likely	.526	No
C2	Performing Workshop	Arts	78	163	176	Less	Less Likely	.000	Yes
C2	Performing Workshop	Non-Arts	82	114	109	More	More Likely	.304	No
C3	Literary Workshop	Arts	80	173	167	More	More Likely	.006	Yes
C3	Literary Workshop	Non-Arts	79	162	162.9	Less	Less Likely	.565	No
C4	Technical Workshop	Arts	76	391	384	More	More Likely	.385	No
C4	Technical Workshop	Non-Arts	93	43	38	More	More Likely	.066	No

Table 4.19

Arts Forms, Growth, Actual/Expected Counts, Significant Difference Shown in Appendix C5 - C9

Appendix C	Area	Arts Non-Arts	% Growth	Actual Count	Expected Count	Less More than Expected	Less Likely More Likely to Have Growth	P-Value	Sig Diff Yes No
C5	Dance Art Form	Arts	75	280	276	More	More Likely	.616	No
C5	Dance Art Form	Non-Arts	78	304	310	Less	Less Likely	.161	No
C6	Theater Art Form	Arts	75	455	459	Less	Less Likely	.002	Yes
C6	Theater Art Form	Non-Arts	80	695	713	Less	Less Likely	.059	No
C7	Music Art Form	Arts	73	822	828	Less	Less Likely	.583	No
C7	Music Art Form	Non-Arts	81	1247	1233	More	More Likely	.007	Yes
C8	Visual Art Form	Arts	74	1155	1155	Neither	Neither	None	No
C8	Visual Art Form	Non-Arts	81	1590	1590.3	Less	Less Likely	.916	No
C9	Technical Art Form	Arts	74	1103	1102	More	More Likely	.955	No
C9	Technical Art Form	Non-Arts	82	1508	1493	More	More Likely	.424	No

Table 4.20

Arts Activities, Growth, Actual/Expected Counts, Significant Difference Shown in Appendix C10 – C16

Appendix C	Area	Arts Non-Arts	% Growth	Actual Count	Expected Count	Less More than Expected	Less Likely More Likely to Have Growth	P-Value	Sig Diff Yes No
C10	Listening to Music Arts Activity	Arts	74	975	982	Less	Less Likely	.464	No
C10	Listening to Music Arts Activity	Non-Arts	81	1927	2379	Less	Less Likely	.060	No
C11	Composing Arts Activity	Arts	71	484	495	Less	Less Likely	.003	Yes
C11	Composing Arts Activity	Non-Arts							
C12	Dance Arts Activity	Arts	76	327	323	More	More Likely	.124	No
C12	Dance Arts Activity	Non-Arts	81	901	905	Less	Less Likely	.669	No
C13	Plays Arts Activity	Arts	74	684	697	Less	Less Likely	.000	Yes
C13	Plays Arts Activity	Non-Arts	80	1164	1172	Less	Less Likely	.694	No
C14	Painting Arts Activity	Arts	74	732	742	Less	Less Likely	.000	Yes
C14	Painting Arts Activity	Non-Arts	81	1898	1892	More	More Likely	.185	No
C15	Creating Writing Arts Activity	Arts	75	686	690	Less	Less Likely	.001	Yes
C15	Creating Writing Arts Activity	Non-Arts	81	1518	1508	More	More Likely	.644	No
C16	Technology Arts Activity	Arts	75	850	838	More	More Likely	.218	No
C16	Technology Arts Activity	Non-Arts	81	2206	2210	Less	Less Likely	.484	No

Table 4.21

Arts Frequency, Growth, Actual/Expected Counts, Significant Difference Shown in Appendix C17 – C19

Appendix C	Area	Arts Non-Arts	% Growth	Actual Count	Expected Count	Less More than Expected	Less Likely More Likely to Have Growth	P-Value	Sig Diff Yes No
C17	Music Frequency Daily	Arts	77	149	153	Less	Less Likely	.011	Yes
C17	Music Frequency Daily	Non-Arts	81	361	353	More	More Likely	.254	No
C17	Music Frequency Weekly	Arts	74	384	382	More	More Likely	.011	Yes
C17	Music Frequency Weekly	Non-Arts	81	865	868	Less	Less Likely	.254	No
C17	Music Frequency Monthly	Arts	74	256	252	More	More Likely	.011	Yes
C17	Music Frequency Monthly	Non-Arts	80	925	936	Less	Less Likely	.254	No
C17	Music Frequency Never	Arts	73	366	366.4	Less	Less Likely	.011	Yes
C17	Music Frequency Never	Non-Arts	85	325	317	More	More Likely	.254	No
C18	Composing Frequency - Weekly	Arts	69	46	51	Less	Less Likely	.572	No
C18	Composing Frequency - Weekly	Non-Arts							
C18	Composing Frequency - Monthly	Arts	75	204	199	More	More Likely	.572	No
C18	Composing Frequency - Monthly	Non-Arts	80	52	54	Less	Less Likely	.525	No
C18	Composing Frequency - Never	Arts	74	905	904	More	More Likely	.572	No
C18	Composing Frequency - Never	Non-Arts	81	361	353	More	More Likely	.525	No
C19	Dance Frequency Daily	Arts							
C19	Dance Frequency Daily	Non-Arts	83	178	178.9	Less	Less Likely	.729	No
C19	Dance Frequency Weekly	Arts	73	157	171	Less	Less Likely	.000	Yes
C19	Dance Frequency Weekly	Non-Arts	81	550	546	More	More Likely	.729	No
C19	Dance Frequency Monthly	Arts	77	323	305	More	More Likely	.000	Yes
C19	Dance Frequency Monthly	Non-Arts	82	448	443	More	More Likely	.729	No
C19	Dance Frequency Never	Arts	73	675	677	Less	Less Likely	.000	Yes
C19	Dance Frequency Never	Non-Arts	80	1300	1307	Less	Less Likely	.729	No
C20	Plays Frequency Daily	Non-Arts	76	60	67	Less	Less Likely	.009	Yes

C20	Plays Frequency Weekly	Arts	69	46	51	Less	Less Likely	.000	Yes
C20	Plays Frequency Weekly	Non-Arts	72	121	135	Less	Less Likely	.009	Yes
C20	Plays Frequency Monthly	Arts	76	524	528	Less	Less Likely	.000	Yes
C20	Plays Frequency Monthly	Non-Arts	83	983	965	More	More Likely	.009	Yes
C20	Plays Frequency Never	Arts	73	585	575	More	More Likely	.000	Yes
C20	Plays Frequency Never	Non-Arts	79	1312	1307	More	More Likely	.009	Yes
C21	Drawing Frequency Daily	Arts	77	118	114	More	More Likely	.000	Yes
C21	Drawing Frequency Daily	Non-Arts	88	200	183	More	More Likely	.000	Yes
C21	Drawing Frequency Weekly	Arts	75	531	542	Less	Less Likely	.000	Yes
C21	Drawing Frequency Weekly	Non-Arts	82	771	761	More	More Likely	.000	Yes
C21	Drawing Frequency Monthly	Arts	70	197	204	Less	Less Likely	.000	Yes
C21	Drawing Frequency Monthly	Non-Arts	79	1293	1321	Less	Less Likely	.000	Yes
C21	Drawing Frequency Never	Arts	74	309	294	More	More Likely	.000	Yes
C21	Drawing Frequency Never	Non-Arts	86	1312	1307	More	More Likely	.000	Yes
C22	Creative Writing Frequency Daily	Arts	73	75	79	Less	Less Likely	.012	Yes
C22	Creative Writing Frequency Daily	Non-Arts	85	136	134	More	More Likely	.221	No
C22	Creative Writing Frequency Weekly	Arts	75	594	591	More	More Likely	.012	Yes
C22	Creative Writing Frequency Weekly	Non-Arts	81	407	404	More	More Likely	.221	No
C22	Creative Writing Frequency Monthly	Arts	70	131	138	Less	Less Likely	.012	Yes
C22	Creative Writing Frequency Monthly	Non-Arts	81	1039	1031	More	More Likely	.221	No
C22	Creative Writing Frequency Never	Arts	73	355	345	More	More Likely	.012	Yes
C22	Creative Writing Frequency Never	Non-Arts	81	894	905	Less	Less Likely	.221	No
C23	Technology Frequency Daily	Arts	70	167	185	Less	Less Likely	.001	Yes
C23	Technology Frequency Daily	Non-Arts	84	738	717	More	More Likely	.000	Yes
C23	Technology Frequency Weekly	Arts	77	540	519	More	More Likely	.001	Yes

C23	Technology Frequency Weekly	Non-Arts	78	967	991	Less	Less Likely	.000	Yes
C23	Technology Frequency Monthly	Arts	73	257	251	More	More Likely	.001	Yes
C23	Technology Frequency Monthly	Non-Arts	81	581	580	More	More Likely	.000	Yes
C23	Technology Frequency Never	Arts	71	191	198	Less	Less Likely	.001	Yes
C23	Technology Frequency Never	Non-Arts	84	190	187	More	More Likely	.000	Yes

Table 4.22

Significance and Effect Size Relationships of Arts Areas – Arts and Non-Arts Schools

Arts NonArts Combined Teacher	Arts Area	Arts: Workshop, Form, Activity, or Frequency	Value	df	Asymp Sig (P-Value)	Effect Size 0 (no relationship) – 1 (perfect relationship) <0.1 weak <0.3 modest <0.5 moderate <0.8 strong ≤0.8 very strong
Arts	Visual Arts	Arts Workshop	18.619	2	.000	.01 Weak
Arts	Performing Arts	Arts Workshop	60.478	2	.000	.19 Modest
Arts	Literary Arts	Arts Workshop	10.103	2	.006	.08 Weak
Arts	Theater Arts	Arts Form	12.077	2	.002	.08 Weak
Arts	Music Arts	Arts Form	10.044	2	.007	.06 Weak
Arts	Compose Arts	Arts Activity	11.947	2	.003	.08 Weak
Arts	Plays & Performance Arts	Arts Activity	21.615	2	.000	.11 Modest
Arts	Drawing & Painting Arts	Arts Activity	18.128	2	.000	.10 Modest
Arts	Creative Writing Arts	Arts Activity	13.895	2	.001	.09 Weak
Arts	Listening to Music Arts	Frequency	16.459	6	.011	.10 Modest
Arts	Dance Arts	Frequency	27.501	4	.000	.13 Modest
Arts	Plays & Performing Arts	Frequency	27.501	4	.000	.13 Modest
Non-Arts	Plays & Performing Arts	Frequency	17.001	6	.009	.07 Weak
Arts	Drawing, Painting & Illustrating Arts	Frequency	26.346	6	.000	.13 Modest
Non-Arts	Drawing, Painting & Illustrating Arts	Frequency	26.835	6	.000	.09 Weak
Arts	Creative Writing Arts	Frequency	16.401	6	.012	.10 modest
Arts	Technology	Frequency	23.394	6	.001	12 modest
Non-Arts	Technology	Frequency	26.644	6	.000	.09 Weak

Table 4.23

Significance and Effect Size Relationships of Demographic Groups and Arts Areas – Arts and Non-Arts Schools Cross Tabulations Appendix C24 – C30

Arts Non-Arts Combined Teacher	Demographic Group	Arts Type: Workshop, Form, Activity, or Frequency	Value	df	Asymp Sig (P-Value)	Effect Size 0 (no relationship) – 1 (perfect relationship) <0.1 weak <0.3 modest <0.5 moderate <0.8 strong ≤0.8 very strong
Combined	Asian	Compose Arts Activity	12.820	2	.002	.21 Modest
Combined	Boys	Compose Arts Activity	10.871	2	.004	.06 Weak
Combined	FR	Compose Arts Activity	16.940	2	.000	.10 Modest
Combined	Girls	Compose Arts Activity	21.504	2	.000	.09 Weak
Combined	Girls	Listening to Music Arts Activity	6.149	2	.046	.05 Weak
Combined	Hispanic	Compose Arts Activity	13.357	2	.001	.23 Modest
Combined	LEP	Dance & Movement Arts Activity	6.072	2	.048	.14 Modest
Combined	Sp Ed	Compose Arts Activity	5.804	2	.055	.10 Modest
Combined	Sp Ed	Dance & Movement Arts Activity	14.384	2	.001	.16 Modest

Hypothesis Tests

Table 4.24

Summary of Hypothesis Tests

Hypothesis		Null Hypothesis	Test
H1o:	There is no relationship between arts integration and student achievement.	Reject	Pearson chi square test
H2o:	There is no significant difference between special education students at the arts magnet school and special education students at the non-arts magnet school on reading growth.	Reject	Pearson chi square test
H3o:	There is no significant difference based on ethnicity at the arts magnet school and ethnicity at the non-arts magnet school on reading growth.	Reject	Pearson chi square test
H4o:	There is no significant difference based on socioeconomic status at the arts magnet school and socioeconomic status at the non-arts magnet school on reading growth.	Reject	Pearson chi square test
H5o:	There is no significant difference based on limited English proficiency at the arts magnet school and limited English proficiency at the non-arts magnet school on reading growth.	Reject	Pearson chi square test
H6o:	There is no significant difference based on gender at the arts magnet school and gender at the non-arts magnet school on reading growth.	Reject	Pearson chi square test
H7o:	There is no significant difference based on gifted at the arts magnet school and gifted at the non-arts magnet school on reading growth.	Reject	Pearson chi square test

Chapter V: Discussion, Implications, Recommendations

This chapter will discuss the data presented in Chapter IV, the implications of the findings, and the recommendations for future studies.

Overview of the Study

This quantitative study included data from 67 teachers from three arts schools and five non-arts schools and 4,948 students in second through sixth grade from two suburban school districts located in the surrounding area of Minneapolis and St. Paul in Minnesota.

The purpose of this quantitative cross sectional survey design dual method study was to test a theory that related arts integration to student achievement. This study examined the relationship between teacher practice and student performance across multiple demographic groups in order to determine if a relationship existed between teacher practice and achievement in reading.

Research Questions

The two research questions identified.

1. What is the relationship between arts integration and achievement?
2. What are the differences in demographic factors and student reading growth?

Hypotheses

Null Hypotheses

H1o: There is no relationship between arts integration and student achievement.

H2o: There is no significant difference between special education students at the arts magnet schools and special education students at the non-arts schools on reading growth.

H3o: There is no significant difference based on ethnicity at the arts magnet schools and ethnicity at the non-arts schools on reading growth.

H4o: There is no significant difference based on socioeconomic status at the arts magnet schools and socioeconomic status at the non-arts schools on reading growth.

H5o: There is no significant difference based on limited English proficiency at the arts magnet schools and limited English proficiency at the non-arts schools on reading growth.

H6o: There is no significant difference based on gender at the arts magnet schools and gender at the non-arts schools on reading growth.

H7o: There is no significant difference based on gifted at the arts magnet schools and gifted at the non-arts schools on reading growth.

Alternative (1) & Alternative Non-Directional (2-7) Hypotheses

H1ı There is a relationship between arts integration and achievement.

H2ı There is a significant difference between special education students at the arts magnet schools and special education students at the non-arts schools on reading growth.

H3ı There is a significant difference based on ethnicity at the arts magnet schools and ethnicity at the non-arts schools on reading growth.

H4ı There is a significant difference based on socioeconomic status at the arts magnet schools and socioeconomic status at the non-arts schools on reading growth.

$H5_1$ There is a significant difference based on limited English proficiency at the arts magnet schools and limited English proficiency at the non-arts schools on reading growth.

$H6_1$ There is a significant difference based on gender at the arts magnet schools and gender at the non-arts schools on reading growth.

$H7_1$ There is a significant difference based on gifted at the arts magnet schools and gifted at the non-arts schools on reading growth.

Summary of Findings

The Fall 2010 to Fall 2011 Measures of Academic Progress (MAP) Reading RIT (Rasch Unit) growth data was used to measure achievement. The School District S and School District T assessment offices provided the reading data in an Excel data file. The Excel data file was then exported into SPSS to run tests. Participant teachers completed the teacher practice survey either using paper/pencil or online method. The teacher practice data was manually entered into SPSS in correlation to the reading data to run tests. The Pearson chi square test was used to test the relationship between arts integration and student reading achievement. The actual count of students who showed growth and the expected count of students expected to show growth were analyzed. Significance and effect size were calculated to show the strength of found relationships. This is a non-probability purposive sampling method therefore this survey study is not meant to make generalizations but may generate information for future study on the topic. The results of the tests used and data collected is discussed in Chapter V.

Research Question Findings

Research Question One Discussion

What is the relationship between arts integration and achievement?

Hypothesis 1 looked at the relationship between arts integration and student achievement. A cross tabulation and chi square test was done to test the relationship between reading growth in arts and non-arts schools.

A significant difference was found between student growth in arts and non-arts schools, with non-arts schools outperforming arts schools (chi square = 4979.706, df = 6, p = .000 and likelihood ratio 50.082, df = 6, p = .000) using the cut-off point 0.05, .000 is less than 0.05. The effect size of the relationship found between arts and non-arts teachers and growth in reading was 1.0, which is a very strong relationship.

While the MAP data indicated a higher percentage of students that showed reading growth in non-arts schools (81% in the non-arts schools versus 74% in the arts schools), it also indicated a significant difference between the actual count and the expected count of students who showed growth in the arts and non-arts schools. The actual count (1,155) of students who showed growth was less than the expected count (1,232) in the arts schools. In the non-arts schools, the actual count (2,476) of students who showed growth was more than the expected count (2,397). As a result, the differences found indicated that the arts schools were less likely to have reading growth in comparison to the non-arts schools, which were more likely to have growth in reading. Consequently, a significant difference was found so the null hypothesis was rejected.

A questionnaire was given to teachers in arts and non-arts schools to learn more about the arts methods and practices used. A series of three-way cross tabulations with chi-square tests were done to analyze the relationship between arts integration practices and student achievement in the arts and non-arts schools.

Tables 5.1 to 5.3 show the significance and effect size relationships for the arts practices areas where the Pearson chi square test showed the asymp sig or p-value in the range of .05 (confidence level of 95%) to .000 (.01 confidence level of 99%). In addition, the tables include those arts practice areas where the actual count of students who showed growth is less than or more than the expected count of students who showed growth or areas where students are less or more likely to have growth.

In Table 5.1 three arts workshops attended by teachers in arts schools showed a significant difference. The table showed that visual arts workshop had a significant difference with a .000 p-value and an effect size of .01 and performing workshop had a significant difference with a .000 p-value and an effect size of .19. However, the actual count (391 for visual arts workshop and 163 for performing arts workshop) of students who showed growth was less than the expected count (405 for visual arts workshop and 176 for performing arts workshop) of students who should show growth. Consequently the data shows that students are less likely to show growth. Though a relationship was found between growth in reading and teachers attending a visual and/or performing arts workshop less growth resulted than expected.

The table also shows that literary workshop has a significant difference with a .006 p-value and a .08 effect size. In this sample the actual count (173) of students who showed growth is more than the expected count (167) of the students who showed

growth. As a result, a relationship was found between teachers attending a literary arts workshop and student growth in reading and more student growth resulted than expected.

Table 5.1

Arts Workshops

Appendix C	Area	Arts Non-Arts	% Growth	Actual Count	Expected Count	Less More than Expected	Less Likely More Likely to Have Growth	P-Value	Sig Diff Yes No	Effect Size
C1	Visual Workshop	Arts	74	391	405	Less	Less Likely	.000	Yes	.01 Weak
C2	Performing Wokshop	Arts	78	163	176	Less	Less Likely	.000	Yes	.19 Modest
C3	Literary Workshop	Arts	80	173	167	More	More Likely	.006	Yes	.08 Weak

In Table 5.2 two art forms showed a significant difference in arts and non-arts schools. The table shows that theater arts form used in the arts schools showed a significant difference with a p-value of .002 and an effect size of .08. However, the actual count (455) of students who showed growth was slightly less than the expected count (459) of students who showed growth. Consequently the data shows that students are slightly less likely to show growth. Though a relationship was found between growth in reading and teachers using a theater arts form during instruction slightly less growth resulted than expected.

The Table also shows that music arts form used in the non-arts schools has a significant difference with a .007 p-value and a .06 effect size. In this sample the actual count (1247) of students who showed growth is more than the expected count (1233) of the students who showed growth. As a result, a relationship was found between teachers using music as an arts form and student growth in reading and more student growth

resulted than expected.

Table 5.2

Arts Form Practices

Appendix C	Area	Arts Non-Arts	% Growth	Actual Count	Expected Count	Less More than Expected	Less Likely More Likely to Have Growth	P-Value	Sig Diff Yes No	Effect Size
C6	Theater Art Form	Arts	75	455	459	Less	Less Likely	.002	Yes	.08 Weak
C7	Music Art Form	Non-Arts	81	1247	1233	More	More Likely	.007	Yes	.06 Weak

In Table 5.3 four arts activities in the arts schools showed a significant difference. The table shows that composing arts activity showed a significant difference with a p-value of .003 and an effect size of .08. However, the actual count (484) of students who showed growth was less than the expected count (495) of students who showed growth. Consequently, the data shows that students are less likely to show growth. Though a relationship was found between growth in reading and teachers using compose arts activities during instruction less growth resulted than expected.

Plays arts activity showed a significant difference with a p-value of .000 and an effect size of .11. However, the actual count (684) of students who showed growth was less than the expected count (697) of students who showed growth. Consequently, the data shows that students are less likely to show growth. Though a relationship was found between growth in reading and teachers using plays arts activities during instruction less growth resulted than expected.

Painting arts activity showed a significant difference with a p-value of .000 and an effect size of .10. However, the actual count (732) of students who showed growth was less than the expected count (742) of students who showed growth. Consequently the data shows that students are less likely to show growth. Though a relationship was found between growth in reading and teachers using painting arts activities during instruction less growth resulted than expected.

Creative writing arts activity showed a significant difference with a p-value of .001 and an effect size of .09. However, the actual count (686) of students who showed growth was slightly less than the expected count (690) of students who showed growth. Consequently the data shows that students are slightly less likely to show growth. Though a relationship was found between growth in reading and teachers using plays arts activities during instruction less growth resulted than expected.

Table 5.3

Arts Practice Activities

Appendix C	Area	Arts Non-Arts	% Growth	Actual Count	Expected Count	Less More than Expected	Less Likely More Likely to Have Growth	P-Value	Sig Diff Yes No	Effect Size
C11	Composing Arts Activity	Arts	71	484	495	Less	Less Likely	.003	Yes	.08 Weak
C13	Plays Arts Activity	Arts	74	684	697	Less	Less Likely	.000	Yes	.11 Modest
C14	Painting Arts Activity	Arts	74	732	742	Less	Less Likely	.000	Yes	.10 Modest
C15	Creating Writing Arts Activity	Arts	75	686	690	Less	Less Likely	.001	Yes	.09 Weak

Tables 5.4 through 5.5 show the frequency of use of arts activities in the arts and non-arts schools that showed a significant difference. Table 5.4 shows the areas with a significant difference that are less likely to show student growth while table 5.5 shows the areas with a significant difference that are more likely to show student growth.

In Table 5.4 there are 16 arts activities of various frequencies with a significant difference and less likely to show growth. Of those listed, 12 of the 16 or 75% are in the arts schools. Music frequency daily, music frequency never, dance frequency weekly, dance frequency never, plays frequency weekly, plays frequency monthly, drawing frequency weekly, drawing frequency monthly, creative writing daily, creative writing frequency monthly, technology frequency daily, and technology frequency never were found to have a negative impact on growth in the arts schools. While in the non-arts schools plays frequency daily, plays frequency weekly, drawing frequency monthly, and technology frequency weekly were found to have a negative impact on growth in the non-arts schools.

In Table 5.5 there are 18 arts activities of various frequencies with a significant difference and more likely to show growth. Of those listed, 10 of the 16 or 63% are in the arts schools. Each had a p-value ranging from .000 to .012 with an effect size of .10 to .13 in the modest range for the arts schools. Music frequency weekly, music frequency monthly, dance frequency monthly, plays frequency never, drawing frequency daily, drawing frequency never, creative writing weekly, creative writing never, technology frequency weekly, and technology frequency monthly were more likely to show growth in the arts schools. While in the non-arts schools plays frequency monthly, plays frequency never, drawing frequency daily, drawing frequency weekly, drawing frequency

never, technology frequency daily, technology frequency monthly, and technology frequency never were more likely to show growth. In the non-arts schools each had a p-value ranging from .000 to .009 with an effect size of .07 - .09 in the weak range.

Table 5.4

Arts Frequency Practice Less Likely to Have Growth

Appendix C	Area	Arts Non-Arts	% Growth	Actual Count	Expected Count	Less More than Expected	Less Likely More Likely to Have Growth	P-Value	Sig Diff Yes No	Effect Size
C17	Music Frequency Daily	Arts	77	149	153	Less	Less Likely	.011	Yes	.10 Modest
C17	Music Frequency Never	Arts	73	366	366.4	Less	Less Likely	.011	Yes	.10 Modest
C19	Dance Frequency Weekly	Arts	73	157	171	Less	Less Likely	.000	Yes	.13 Modest
C19	Dance Frequency Never	Arts	73	675	677	Less	Less Likely	.000	Yes	.13 Modest
C20	Plays Frequency Daily	Non-Arts	76	60	67	Less	Less Likely	.009	Yes	.07 Weak
C20	Plays Frequency Weekly	Arts	69	46	51	Less	Less Likely	.000	Yes	.13 Modest
C20	Plays Frequency Weekly	Non-Arts	72	121	135	Less	Less Likely	.009	Yes	.07 Weak
C20	Plays Frequency Monthly	Arts	76	524	528	Less	Less Likely	.000	Yes	.13 Modest
C21	Drawing Frequency Weekly	Arts	75	531	542	Less	Less Likely	.000	Yes	.13 Modest
C21	Drawing Frequency Monthly	Arts	70	197	204	Less	Less Likely	.000	Yes	.13 Modest
C21	Drawing Frequency Monthly	Non-Arts	79	1293	1321	Less	Less Likely	.000	Yes	.09 Weak
C22	Creative Writing Frequency Daily	Arts	73	75	79	Less	Less Likely	.012	Yes	.10 Modest
C22	Creative Writing Frequency Monthly	Arts	70	131	138	Less	Less Likely	.012	Yes	.10 Modest
C23	Technology Frequency Daily	Arts	70	167	185	Less	Less Likely	.001	Yes	.12 Modest
C23	Technology Frequency Weekly	Non-Arts	78	967	991	Less	Less Likely	.000	Yes	.09 Weak
C23	Technology	Arts	71	191	198	Less	Less	.001	Yes	.12

	Frequency Never						Likely			Modest

Table 5.5

Arts Frequency Practice More Likely to Have Growth

Appendix C	Area	Arts Non-Arts	% Growth	Actual Count	Expected Count	Less More than Expected	Less Likely More Likely to Have Growth	P-Value	Sig Diff Yes No	Effect Size
C17	Music Frequency Weekly	Arts	74	384	382	More	More Likely	.011	Yes	.10 Modest
C17	Music Frequency Monthly	Arts	74	256	252	More	More Likely	.011	Yes	.10 Modest
C19	Dance Frequency Monthly	Arts	77	323	305	More	More Likely	.000	Yes	.13 Modest
C20	Plays Frequency Monthly	Non-Arts	83	983	965	More	More Likely	.009	Yes	.07 Weak
C20	Plays Frequency Never	Arts	73	585	575	More	More Likely	.000	Yes	.13 Modest
C20	Plays Frequency Never	Non-Arts	79	1312	1307	More	More Likely	.009	Yes	.07 Weak
C21	Drawing Frequency Daily	Arts	77	118	114	More	More Likely	.00067	Yes	.13 Modest
C21	Drawing Frequency Daily	Non-Arts	88	200	183	More	More Likely	.000	Yes	.09 Weak
C21	Drawing Frequency Weekly	Non-Arts	82	771	761	More	More Likely	.000	Yes	.09 Weak
C21	Drawing Frequency Never	Arts	74	309	294	More	More Likely	.000	Yes	.13 Modest
C21	Drawing Frequency Never	Non-Arts	86	1312	1307	More	More Likely	.000	Yes	.09 Weak
C22	Creative Writing Frequency Weekly	Arts	75	594	591	More	More Likely	.012	Yes	.10 Modest
C22	Creative Writing Frequency Never	Arts	73	355	345	More	More Likely	.012	Yes	.10 Modest
C23	Technology	Non-	84	738	717	More	More	.000	Yes	.09

	Frequency Daily	Arts					Likely			Weak
C23	Technology Frequency Weekly	Arts	77	540	519	More	More Likely	.001	Yes	.12 Modest
C23	Technology Frequency Monthly	Arts	73	257	251	More	More Likely	.001	Yes	.12 Modest
C23	Technology Frequency Monthly	Non-Arts	81	581	580	More	More Likely	.000	Yes	.09 Weak
C23	Technology Frequency Never	Non-Arts	84	190	187	More	More Likely	.000	Yes	.09 Weak

Table 5.6 to 5.7 shows the distribution of frequency between less likely to have growth and more likely to have growth. Table 5.7 shows little difference between the frequencies daily, weekly, monthly, or never with most teachers choosing weekly, monthly, or never of those cases where a significant difference was found and students were more likely to have growth. However, of the six cases discussed with a significant difference and modest effect size one out of six teachers chose daily, two out of six teachers chose weekly, three out of six teachers chose monthly, and zero out of six teachers chose never. There is little difference between frequency distribution and less likely and more likely to have growth.

Table 5.6

Arts Frequency with Significant Difference Less Likely to Have Growth

Frequency	Arts	Non-Arts
Daily	3	1
Weekly	3	2
Monthly	3	1
Never	3	0
Total	12	4

Table 5.7

Arts Frequency with Significant Difference More Likely to Have Growth

Frequency	Arts	Non-Arts
Daily	1	2
Weekly	3	1
Monthly	3	2
Never	3	3
Total	10	8

In table 5.8 a significant difference was found for the demographic groups listed. Two demographic groups showed a significant difference, were more likely to have growth, and had a weak to modest effect size. Four demographic groups showed a significance difference, had a modest effect size, but were less likely to have growth.

The cross tabulation girls and listening to music showed a significant difference with a p-value of .000 and an effect size of .05. The actual count (1432) was more than the expected count (1430) indicating that listening to music was more effective for girls.

The cross tabulation special education and compose had a significant difference with a p-value of .05 and an effect size of .10. The actual count (67) was more than the expected count (65) indicating that using the compose music arts practice was more effective for special education students.

The cross tabulation Asian and compose had a significant difference with a p-value of .002 and an effect size of .21. The actual count (14) was less than the expected count (20) indicating that using the compose music arts practice was less effective for Asian students.

The cross tabulation Hispanic and compose had a significant difference with a p-value of .001 and an effect size of .23. The actual count (8) was less than the expected count (15) indicating that using the compose music arts practice was less effective for Hispanic students.

The cross tabulation LEP and dance had a significant difference with a p-value of .048 and an effect size of .14. The actual count (70) was less than the expected count (78) indicating that using the dance arts practice was less effective for LEP students.

The cross tabulation special education and dance had a significant difference with a p-value of .001 and an effect size of .16. The actual count (126) was less than the expected count (131) indicating that using the dance arts practice was less effective for special education students.

Table 5.8

Arts Practices Growth for Demographic Groups, Significance, Effect

Appendix C	Area	Arts Non-Arts	% Growth	Actual Count	Expected Count	Less More than Expected	Less Likely More Likely to Have Growth	P-Value	Sig Diff Yes No	Effect Size
C24	Asian Compose	Combined	54	14	20	Less	Less Likely	.002	Yes	.21 Modest
C25	Male Compose	Combined	42	255	273	Less	Less Likely	.004	Yes	.06 Weak
C26	FR Compose	Combined	65	114	139	Less	Less Likely	.000	Yes	.10 Modest
C27	Female Compose	Combined	68	229	255	Less	Less Likely	.000	Yes	.09 Weak
C28	Girls Music	Combined	77	1432	1430	More	More Likely	.046	Yes	.05 Weak
C29	Hispanic Compose	Combined	50	8	15	Less	Less Likely	.001	Yes	.23 Modest
C30	LEP Dance	Combined	74	70	78	Less	Less Likely	.048	Yes	.14 Modest
C31	Sp Ed	Combined	79	67	65	More	More	.05	Yes	.10

	Compose						Likely			Modest
C32	Sp Ed Dance	Combined	82	126	131	Less	Less Likely	.001	Yes	.16 Modest

A significant difference was found between student growth and teachers in arts and non-arts schools, with non-arts schools outperforming the arts schools (chi square = 4979.706, df = 6, p = .000 and likelihood ratio 50.082, df = 6, p = .000) using the cut-off point 0.05, .000 is less than 0.05. The effect size of the relationship found between arts and non-arts teachers and growth in reading was 1.0, which is a very strong relationship. However, the differences found indicated that the arts schools were less likely to have reading growth in comparison to the non-arts schools. Nevertheless, a significant difference was found, so the null hypothesis was rejected.

Further, some relationships were found between the type and frequency of arts integration practices and student achievement in both the arts and non-arts schools as shown in Tables 5.1 through 5.5. Those cases where a difference was found and likely to have growth include: literary workshop in the arts schools, music art form in the non-arts schools, and music, dance, drawing, creative writing, and technology frequency in the arts schools. Further noted are the four arts activities where a significant difference was found but less likely to have growth. Those areas include compose, plays and performances, painting and illustrating, and creative writing. While those areas are less likely to have growth the data indicates a slight difference, which suggests further studies may conclude differently.

Significant differences were also found when looking at growth of demographic groups and the use of arts practices. A significant difference was found for girls, listening to music arts activity, and growth. A significant relationship was also found with special

ed students, compose, and growth. In both cases they were more likely to show growth. In addition, four demographic areas were found to have a significant difference, modest effect size, but were slightly less likely to have growth. While those areas are less likely to have growth the data indicates a slight difference, which suggests further studies may conclude differently.

The data shows a significant relationship between teacher arts practice and growth for both arts and non-arts schools across demographic groups. Special education and gender were the two demographic groups that showed a significant relationship between teacher arts practice and growth in arts schools only. LEP was the demographic group that showed a significant relationship between teacher arts practice and growth in non-arts schools only.

Due to the nature of this study the findings may have the potential to cause further research to be conducted but should not result in generalizations about the topic in the area of teacher practice and student achievement.

Research Question Two Discussion

What are the differences in demographic factors and student reading growth?

Hypotheses 2-7 looked at the differences between reading growth in the arts and non-arts schools. A series of cross tabulation with chi square tests were done to find relationships between demographic groups and growth in arts and non-arts schools.

Table 5.9 shows a significant relationship was found between the various demographic areas and growth in the arts and non-arts schools. Seven demographic areas

including special ed (arts schools), ethnicity (combined arts/non-arts), White (non-arts), Hispanic (non-arts), Asian (non-arts), male (arts), and gifted (arts and non-arts) showed a significant difference with students more likely to have growth and an effect size greater than or equal to .06. The Asian demographic area showed a significant difference with an effect size of .18 in both the arts and non-arts schools; however, in the arts schools students were less likely to show growth and in the non-arts schools students were more likely to show growth.

The demographic areas that showed a significant difference, effect size greater than or equal to .06 with students more likely to have growth in the arts schools included: special education, gender (male), and gifted. In the arts schools, the demographic area Asian showed an effect size of .18; however, students were less likely to show growth given the actual count (35) and the expected count (43) were very close. The demographic areas that showed a significant difference, effect size greater than or equal to .06 with students more likely to have growth in the non-arts schools included: ethnicity (all), White, Hispanic, Asian, and gifted.

The demographic areas that showed a significant difference, effect size greater than or equal to .06 with students less likely to have growth in the arts schools included: ethnicity (all), White, Hispanic, Asian, free and reduced (FR), gender (female). The demographic areas that showed a significant difference, effect size greater than or equal to .06 with students less likely to have growth in the non-arts schools included: free and reduced (FR) and LEP.

Table 5.9 lists all of the demographic areas found to have significant differences.

Those named were the areas where student growth was more likely to occur. The other areas listed showed a significant difference but students were less likely to have growth based on actual and expected counts. The only demographic area that did not show a significant difference in the arts schools was limited English proficiency (LEP); however, a significant difference was found in the non-arts schools. As a result, the null hypothesis was rejected for special ed, ethnicity, FR, gender, LEP, and gifted.

Table 5.9

Arts/Non Arts with Significant Growth and Effect Size

Figure	Area	Arts Non-Arts	% Growth	Actual Count	Expected Count	Less More than Expected	Less Likely More Likely to Have Growth	P-Value	Sig Diff Yes No	Effect Size
4.2	Sp Ed	Arts	78	142	128	More	More Likely	.019	Yes	.07 Weak
4.3	Ethnicity	Arts	74	1155	1232	Less	Less Likely	.000	Yes	.27 Modest
4.3	Ethnicity	Non-Arts	81	2476	2397	More	More Likely	.000	Yes	.14 Modest
4.4	White	Arts	74	1004	1063	Less	Less Likely	.000	Yes	.08 Weak
4.4	White	Non-Arts	81	1857	1797	More	More Likely	.000	Yes	.08 Weak
4.6	Hispanic	Arts	73	41	54	Less	Less Likely	.000	Yes	.27 Modest
4.6	Hispanic	Non-Arts	86	132	118	More	More Likely	.000	Yes	.27 Modest
4.7	Asian	Arts	65	35	43	Less	Less Likely	.008	Yes	.18 Modest
4.7	Asian	Non-Arts	84	176	167	More	More Likely	.008	Yes	.18 Modest
4.8	FR	Arts	70	302	334	Less	Less Likely	.000	Yes	.13 Modest
4.8	FR	Non-Arts	79	801	846	Less	Less Likely	.000	Yes	.09 Weak
4.9	LEP	Non-Arts	82	174	184	Less	Less Likely	.000	Yes	.08 Weak
4.10	Male	Arts	77	595	575	More	More Likely	.007	Yes	.08 Weak
4.10	Female	Arts	71	560	579	Less	Less Likely	.007	Yes	.08 Weak
4.11	Gifted	Arts	73	260	253	More	More Likely	.022	Yes	.07 Weak
4.11	Gifted	Non-Arts	85	582	547	More	More Likely	.002	Yes	.06 Weak

Table 5.10 shows all of the areas with significant growth and effect size greater than .05 with the students more likely to have growth for arts and non-arts schools.

The table shows that special education students are more likely to have growth in the arts schools. It also shows that special education students are more likely to have growth when teachers in arts and non-arts schools use the compose music arts activity. A significant relationship was found in both cases with a modest effect size. The table also shows a significant relationship between teachers participating in a literary workshop and students more likely to have growth in the arts schools. Other demographic groups in the arts schools that show a significant relationship, with an effect size and students more likely to have growth include male and gifted students.

Table 5.10 shows a significant relationship, effect size, with students more likely to show growth in the non-arts schools as well. The table shows that gifted, White, Hispanic, Ethnicity, and Asian students are more likely to have growth in the non-arts schools. It also shows that students are more likely to have growth when teachers in non-arts schools use the music art form.

Table 5.10

Arts/Non Arts with Significant Growth - More Likely and Effect Size

Figure or Appendix	Arts Area	Arts Form	Arts Non-Arts Combined	Actual Count	Expected Count	More than Expected	More Likely to Have Growth	P-Value	Sig Diff Yes No	Effect Size
C31	Sp Ed	Compose	Combined	67	65	More	More	.05	Yes	.10 Modest
4.2	Sp Ed		Arts	142	128	More	More	.019	Yes	.07 Weak
C3		Literary Workshop	Arts	173	167	More	More	.006	Yes	.08 Weak
4.10	Male		Arts	595	575	More	More	.007	Yes	.08 Weak
4.11	Gifted		Arts	260	253	More	More	.022	Yes	.07 Weak
4.11	Gifted		Non-Arts	582	547	More	More	.002	Yes	.06 Weak
4.3	Ethnicity		Non-Arts	2476	2397	More	More	.000	Yes	.14 Modest
4.4	White		Non-Arts	1857	1797	More	More	.000	Yes	.08 Weak
4.6	Hispanic		Non-Arts	132	118	More	More	.000	Yes	.27 Modest
4.7	Asian		Non-Arts	176	167	More	More	.008	Yes	.18 Modest
C7		Music Art Form	Non-Arts	1247	1233	More	More	.007	Yes	.06 Weak

Summary of Hypothesis Tests Expanded

Table 5.11

Summary of Hypothesis Tests Expanded

Null Hypothesis		Null Hypothesis	Test	Finding
H1o:	There is no relationship between arts integration and student achievement.	Reject	Pearson chi square Test	P-Value Range of Significance .05-.000 Combined P-Value = .000 Difference Arts < Expected NA > Expected Reading Growth Arts = 74% Non-Arts = 81%
H2o:	There is no significant difference between special education students at the arts magnet school and special education students at the non-arts magnet school on reading proficiency.	Reject	Pearson chi square Test	P-Value Range of Significance .05-.000 P-Value

				Arts = .019 NA = .150 Difference Arts > Expected NA > Expected Reading Growth Arts = 78% Non-Arts = 82%
H3o:	There is no significant difference based on ethnicity at the arts magnet school and ethnicity at the non-arts magnet school on reading proficiency.	Reject	Pearson chi square Test	P-Value Range of Significance .05-.000 Combined P-Value = .000 Difference Arts < Expected NA > Expected Reading Growth Arts = 74% Non-Arts = 81%
H4o:	There is no significant difference based on socioeconomic status at the arts magnet school and socioeconomic status at the non-arts magnet school on reading proficiency.	Reject	Pearson chi square Test	P-Value Range of Significance .05-.000 Combined P-Value = .000 Difference Arts < Expected NA < Expected Reading Growth Arts = 70% Non-Arts = 79%
H5o:	There is no significant difference based on Limited English Proficiency at the arts magnet school and limited English proficiency at the non-arts magnet school on reading proficiency.	Reject	Pearson chi square Test	P-Value Range of Significance .05-.000 P-Value Arts = .062 NA = .000 Difference Arts < Expected NA < Expected Reading Growth Arts = 78% Non-Arts = 82%
H6o:	There is no significant difference based on gender at the arts magnet school and gender at the non-arts magnet school on reading proficiency.	Reject	Pearson chi square Test	P-Value Range of Significance .05-.000 P-Value Arts = .007 NA = .967 Difference Male Arts > Expected NA < Expected Female Arts < Expected NA > Expected Reading Growth

				Arts = 74% Non-Arts = 81%
H7o:	There is no significant difference based on gifted at the arts magnet school and gifted at the non-arts magnet school on reading proficiency.	Reject	Pearson chi square Test	P-Value Range of Significance .05-.000 P-Value Arts = .022 NA = .002 Difference Arts > Expected NA > Expected Reading Growth Arts = 73% Non-Arts = 85%

Conclusions

The data collected in this study was used to describe the relationship between arts integration and student achievement (growth in reading). Quantitative measures were used to test hypotheses. A bivariate analysis was completed using a cross tabulation method in SPSS.

The data presented shows the relationship between student achievement (growth in reading) and teachers at arts schools, and teachers at non-arts schools when comparing the MAP RIT score from Fall 2010 to the MAP RIT score Fall 2011. The Pearson chi square test was used to test the relationship between student achievement (growth in reading) and teacher arts practice in arts and non-arts schools. This contributes quantitative research to the discussion of arts integration. It brings past research and current research together in an attempt to provide numerical evidence that there is a link between achievement and arts integration and draws conclusions about the data found.

Question one looked at the relationship between arts integration and student achievement. Tables 5.3, 5.8, and 5.9 shows multiple relationships between teacher practice and student achievement in the arts schools. Table 5.10 shows the areas that only

show a significant relationship in arts and non-arts schools. A series of cross tabulation and chi square tests were done to test the relationship between teacher use of arts practices and students who showed growth in reading. Significant relationships were found in both the arts and non-arts schools due to the fact that teachers in both types of schools used arts methods and practices to deliver instruction. This conclusion was possible because this study used standardized test data and teacher response data to draw conclusions. This allowed greater depth in understanding the differences between the two school types. The null hypothesis for question one, there is no relationship between arts integration and achievement, was rejected because significant relationships were found between arts integration and achievement (growth in reading). The significant relationships found were both positive and negative with the non-arts schools outperforming the arts schools across all demographic groups.

While relationships were found throughout the study the differences were not always positive. Table 5.3 shows a significant difference between student growth and teacher use of composing, plays, painting, and creative writing arts activities in the arts schools. However, the data shows the difference found indicates that students are less likely to show growth. Tables 5.3, 5.8, and 5.9 show that in the arts schools students are more likely to show growth in the following areas: special ed, male, and gifted, in the non-arts schools White, Hispanic, Asian, ethnicity, and gifted, and in the arts and non-arts schools combined female and music and special ed and compose. Table 5.10 summarizes the results that are positive for both the arts and non-arts schools. However, the findings indicate that the differences found in the non-arts schools most often show that students are more likely to show growth. The differences found in the arts schools most often

show that students are less likely to show growth. Consequently, the non-arts schools outperformed the arts schools in this study.

Question two looked at the difference between reading growth in arts and non-arts schools based on demographic characteristics. The data presented in this study showed that based on the MAP RIT scores a greater percentage of students in the non-arts schools showed growth in reading. This study used the MAP RIT score as an indicator of achievement. Where there was a difference between the arts and non-arts schools the difference was not always positive for the arts schools. As a result, the null hypothesis was rejected in all demographic groups as shown in table 5.11.

The study questions whether school label makes a difference, which indicates that teacher practice may be more significant than school label. In table 4.8 through 4.11 it is apparent that arts and non-arts school teachers use similar arts activities in a similar frequency. In table 4.14 it shows that teachers use arts methods and practices most often in reading. This finding implies a relationship between teacher practice and student achievement, which may answer why the arts schools showed no advantage over the non-arts schools when compared to teacher practice and student achievement in reading.

Implications

There are several implications of this study. The dual study approach added to the depth of the study. By using a combination of standardized test scores and teacher response the study was able to delve deeper into the relationships between integration practices and achievement, and demographics in arts and non-arts schools.

This study showed that a significant relationship occurred between teacher arts practices and particular demographic groups of students. There was a significant relationship found between the teacher use of the compose music arts activity and positive reading achievement with the special education subgroup. A compose music arts activity has the students using their understanding of music theory to create music compositions. In particular, when teachers in arts and non-arts schools used the compose music arts activity with special education students the special education students were more likely to show growth in reading (79% growth with p-value of .05 and effect size of .10). There was also a significant relationship found between the teacher use of the compose music arts activity and Asian, male, FR, female, and Hispanic. However this relationship was negative in that students in these demographic groups were less likely to show growth in reading if the teacher used the compose music arts activity. There was also a significant relationship found when teachers used other music arts activities with girls in the arts and non-arts schools and reading achievement (77% growth with p-value of .046 and effect size of .05). The frequency of the use of the arts activity or art form was relatively similar between the arts and non-arts schools with very little differentiation. There is little difference between frequency distribution of less likely and more likely to have growth in those areas where significance was found, which implies that a closer study of practices used by teachers whether in an arts school or a non-arts school may be warranted.

This study found significant differences between reading growth and arts and non-arts schools. In many cases the differences were not positive for the arts schools. However, the findings may cause further discussion on the topic. The teacher

questionnaire allowed for further analysis of arts practices in arts and non-arts schools. Researchers have found significant differences in the achievement level of students who are highly involved in the arts across demographic groups (Catterall, Chapleau, & Iwanaga 1999b). While this study did not seek to make a generalization the use of the findings may advance future studies and cause additional interest in arts integration as an approach to learning (Smithrim & Upitis, 2005).

Recommendations for Practitioners

It is evident that significant relationships were found between the use of arts practices and achievement in reading. Further, some of the significant relationships found showed that students were more likely to show growth and some of the significant relationships found showed students were less likely to show growth. A review of the data may allow practitioners some insight on those arts practices that show potential to increase student achievement in reading.

The data presented in this study shows a significant difference between arts areas and student growth in particular areas within the arts and non-arts schools. It is recommended that practitioners examine the areas where relationships were found and consider arts integration as a possible method of instruction to enhance learning. Of particular interest to practitioners may be the compose music arts method and listening to music arts method. A compose music arts activity form has the students using their understanding of music theory to create music compositions. In these particular cases there was a significant difference found with positive growth across several demographic groups in the arts and non-arts schools.

The questionnaire results showed that the academic area most teachers chose to integrate the arts into was Reading. This was evident in both the arts and non-arts schools. Based on the teacher data collected, it is recommended that the content of reading may be a good area to begin integrating arts practices.

Practitioners interested in the topic of arts integration may choose to review the questionnaire responses provided by the arts and non-arts school teachers in this study. The information may be beneficial when determining what integration practices to start using first. In addition, the frequency of use may further assist those practitioners in planning as well.

Arts experiences allow students to access and process information using a variety of learning methods. When students are given a diverse learning experience they have a better likelihood of engaging in the experience, because they have the opportunity to be successful in the style they prefer (Jolls & Grand, 2010). The arts allow students to experience learning in a nontraditional format, which may be needed by some students (Jolls & Grand, 2010). Jolls and Grand (2010) point out that artistic perception such as processing, analyzing, and responding to sensory information is evident in an arts environment. Giving students authentic experiences to actively participate in the learning increases engagement (Smilan, 2010). Consequently, it is not surprising that current research links arts and higher order thinking.

It is recommended that practitioners review the literature and findings to begin to implement arts integration as a way to increase student achievement. The purpose of this study is not to generalize based on the findings but to add to the discussion of arts

integration in hopes practitioners will pursue further learning on the topic and use arts practices to enhance learning and achievement.

Recommendations for Academics

The findings produced, resulted in the recommendations for academics. There was a significant relationship found between arts integration and student achievement in particular arts areas across student demographic groups in the arts and non-arts schools. The differences found were not always positive for the arts or the non-arts schools. However, this study adds to the discussion on the topic and the need for educators to consider that arts integration may be one area to consider when addressing the learning gaps of students.

Further research may be needed to determine why the arts schools did not produce higher reading growth in any demographic group in comparison to the non-arts schools. One recommendation to address this finding may be to analyze the arts programming and teacher training in place at the arts schools and the fidelity to the implementation. Also, a follow-up questionnaire may be recommended for both the arts and non-arts school teachers to better understand the differences that were found between the arts and non-arts school reading growth data. In addition, it is suggested that future research examine the amount of time spent in the academically tested areas in the arts and non-arts schools and compare the findings to standardized math and reading test scores. It may be possible that the arts schools are dedicating less time to the tested topics, which could impact growth.

This non-probability purposive sampling method was not meant to make a generalization but may generate information for future study on the topic. In summary, the study showed a significant relationship, both positive and negative, between student reading growth and the use of arts practices in arts and non-arts schools with the non-arts schools outperforming the arts schools. In addition, the teacher questionnaire showed that teachers in the arts and non-arts schools used arts practices. Further, the data showed that the use of particular arts activities has the potential to positively impact student achievement in reading. It is hoped this information will add to the discussion of arts integration and learning and cause educators to consider arts integration as a method to increase learning and achievement for all students.

Concluding Comments

In order to fully address the achievement problems today we must consider arts integration as one possible solution. Arts integration, as an approach to learning, has been greatly overlooked and yet has potential in closing the achievement gap (Smithrim & Upitis, 2005). Researchers have found significant differences in the achievement level of students who are highly involved in the arts across demographic groups (Catterall, Chapleau, & Iwanaga, 1999b). Given this information, more must be done to link arts integration to student achievement using scientific measures if the arts are to be seen as a credible intervention in this time of high accountability.

The approach of this study was to use quantitative measures to show a relationship between student growth and arts integration. What resulted was important information to consider when reflecting on the topic of arts integration. It was evident that a connection was made between arts integration and growth using multiple cross

tabulations with chi square tests, growth, and teacher practice. Clearly, significant relationships were found across demographic groups in the arts and non-arts schools.

The art forms and activities most frequently employed were theater, music composing, music, plays and performances, drawing and painting, and creative writing. Also found was that the frequency of arts integration was similar in the arts and non-arts schools and evenly distributed across daily, weekly, monthly, and never choices.

While there was a difference in the percentages of students who showed reading growth in the arts and non-arts schools based on the MAP test percentages with the non-arts schools scoring higher, it is evident that teachers in the non-arts schools used arts practices as well based on the teacher questionnaire results. This study did not analyze the size of the growth made: only whether students showed growth when comparing the two data points. However, future studies may want to compare the size of the growth to draw further conclusions when comparing arts and non-arts schools.

As a result, the findings of this study suggest that school labels of "arts" or "non-arts" (traditional) has little significance to the relationship found between teacher practice and growth. More students showed growth in the non-arts schools and teachers in the arts and non-arts schools answered similarly on the teacher questionnaire. Having said that, there were significant relationships found in the arts schools between teacher practice and growth. However, in many cases the relationships found showed a negative impact on student growth based on the chi square tabulation.

This study found a relationship between achievement and arts integration (question one). This study also found a relationship across demographic groups (question two). The study also found that both teachers in the arts and non-arts schools used arts

practices. Given this, perhaps whether or not a student showed growth was dependent on whether or not the teacher used arts practices.

Consequently, analyzing the magnitude of the growth may be equally important to future studies. As a result, further research is needed to determine the effect arts integration has on student achievement beyond a school label and standardized test score. Further, if labels are a descriptor in future studies, researching the level of arts implementation and the demographics of the school may be needed when selecting schools to research. This is a non-probability purposive sampling method therefore this survey study was not meant to make a generalization but may generate information for future study on the topic. Finally, the hope is this study will further contribute to the arts integration discussion.

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Appendix A: Arts Integration Questionnaire Arts School

Arts Integration Questionnaire - Arts Magnet Schools

This questionnaire asks you questions about arts integration methods and practices. In this context - Arts Integration is defined as: a way of teaching using arts activities from the visual, performing, literary, and technical arts areas within the regular curriculum. It is important that you answer all of the questions. Your answers will be confidential.

1. Have you been a classroom teacher in an arts magnet school for two or more years?

   Yes No

2. Did you participate in any arts workshops during the 2010-2011 school year?

   Yes No

   If yes, were you required to attend? Yes No

3. What was the focus of the arts workshop? Choose One

   Visual

   Performing

   Literary

   Technical

   Combination

4. Do you use the following art forms in your classroom?

Dance	Yes No
Theater	Yes No
Music	Yes No
Visual	Yes No
Technical	Yes No

5. Do you use the following arts activities during instruction?

Listening to music	Yes No
Composing music	Yes No
Dance/Movement	Yes No
Plays/Performances	Yes No
Drawing/Painting/Illustrating	Yes No
Creative Writing	Yes No
Technology	Yes No

6. How often do you use the following arts activities during instruction?

Listening to music?	Never Daily Weekly Monthly
Composing music?	Never Daily Weekly Monthly
Dance/Movement?	Never Daily Weekly Monthly
Plays/Performances	Never Daily Weekly Monthly
Drawing/Painting/Illustrating	Never Daily Weekly Monthly
Creative Writing	Never Daily Weekly Monthly
Technology	Never Daily Weekly Monthly

7. Do you give students choices in selecting an art form to use when completing a project or assignment?

   Yes No

8. If you answered yes to question 7, then what art form do students most often select? Choose One

   Dance/Movement
   Theater
   Music
   Visual
   Technical
   Literary

9. What academic area do you most integrate the arts? Choose One

   Mathematics
   Science
   Reading
   Writing
   Social Studies

10. In your opinion do you believe students benefit from arts integration activities?

    Yes No

11. What was the primary reason your school became an arts magnet school?

Thank you for completing this questionnaire.

Appendix B: Arts Integration Questionnaire Non-Arts Schools

Arts Integration Questionnaire - Non-Arts Schools

This questionnaire asks you questions about arts integration methods and practices. In this context - Arts Integration is defined as: a way of teaching using arts activities from the visual, performing, literary, and technical arts areas within the regular curriculum. It is important that you answer all of the questions. Your answers will be confidential.

1. Have you been a classroom teacher in an arts magnet school for two or more years?

   Yes No

2. Did you participate in any arts workshops during the 2010-2011 school year?

   Yes No

3. What was the focus of the arts workshop? Choose One

   Visual

   Performing

   Literary

   Technical

   Combination

4. Do you use the following art forms in your classroom?

Dance	Yes No
Theater	Yes No
Music	Yes No
Visual	Yes No
Technical	Yes No

5. Do you use the following arts activities during instruction?

Listening to music	Yes No
Composing music	Yes No

Dance/Movement	Yes No
Plays/Performances	Yes No
Drawing/Painting/Illustrating	Yes No
Creative Writing	Yes No
Technology	Yes No

6. How often do you use the following arts activities during instruction?

Listening to music?	Never Daily Weekly Monthly
Composing music?	Never Daily Weekly Monthly
Dance/Movement?	Never Daily Weekly Monthly
Plays/Performances	Never Daily Weekly Monthly
Drawing/Painting/Illustrating	Never Daily Weekly Monthly
Creative Writing	Never Daily Weekly Monthly
Technology	Never Daily Weekly Monthly

7. Do you give students choices in selecting an art form to use when completing a project or assignment?

   Yes No

8. If you answered yes to question 7, then what art form do students most often select? Choose One

   Dance/Movement
   Theater
   Music
   Visual
   Technical
   Literary

9. What academic area do you most integrate the arts? Choose One

   Mathematics
   Science
   Reading
   Writing
   Social Studies

10. In your opinion do you believe students benefit from arts integration activities?

Yes No

11. Has your school ever considered becoming an arts magnet school?

Thank you for completing this questionnaire.

Appendix C: Cross Tabulation Tables with Chi Square Test

C 1

Cross Tabulation with *Chi Square Test* for *Visual Workshop, Growth,* and *Teacher Experience* in *Arts/Non-Arts Schools*

Case Processing Summary

Visual Arts Workshop	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Growth/Visual WS/Teachers Two Years or More	4948	100.0%	0	.0%	4948	100.0%

Growth/Visual WS/Teachers Two Years or More Cross Tabulation

Teachers Two Years or More				Visual WS			
				0	Yes	No	Total
0	Growth	0	Count	1			1
			Expected Count	1.0			1.0
			% within Growth	100.0%			100.0%
	Total		Count	1			1
			Expected Count	1.0			1.0
			% within Growth	100.0%			100.0%
Yes	Growth	Yes	Count		391	764	1155
			Expected Count		405.6	749.4	1155.0
			% within Growth		33.9%	66.1%	100.0%
		No	Count		136	271	407
			Expected Count		142.9	264.1	407.0
			% within Growth		33.4%	66.6%	100.0%
		3	Count		63	55	118
			Expected Count		41.4	76.6	118.0
			% within Growth		53.4%	46.6%	100.0%
	Total		Count		590	1090	1680
			Expected Count		590.0	1090.0	1680.0
			% within Growth		35.1%	64.9%	100.0%
No	Growth	Yes	Count		110	2366	2476
			Expected Count		107.6	2368.4	2476.0
			% within Growth		4.4%	95.6%	100.0%
		No	Count		26	552	578
			Expected Count		25.1	552.9	578.0

			% within Growth		4.5%	95.5%	100.0%
		3	Count		6	207	213
			Expected Count		9.3	203.7	213.0
			% within Growth		2.8%	97.2%	100.0%
	Total		Count		142	3125	3267
			Expected Count		142.0	3125.0	3267.0
			% within Growth		4.3%	95.7%	100.0%
Total	Growth	0	Count	1	0	0	1
			Expected Count	.0	.1	.9	1.0
			% within Growth	100.0%	.0%	.0%	100.0%
		Yes	Count	0	501	3130	3631
			Expected Count	.7	537.2	3093.1	3631.0
			% within Growth	.0%	13.8%	86.2%	100.0%
		No	Count	0	162	823	985
			Expected Count	.2	145.7	839.1	985.0
			% within Growth	.0%	16.4%	83.6%	100.0%
		3	Count	0	69	262	331
			Expected Count	.1	49.0	282.0	331.0
			% within Growth	.0%	20.8%	79.2%	100.0%
	Total		Count	1	732	4215	4948
			Expected Count	1.0	732.0	4215.0	4948.0
			% within Growth	.0%	14.8%	85.2%	100.0%

Chi Square Tests

Teachers Two Years or More		Value	df	Asymp. Sig. (2-sided)
0	Pearson Chi-Square	.[a]		
	N of Valid Cases	1		
Yes	Pearson Chi-Square	18.619[b]	2	.000
	Likelihood Ratio	17.737	2	.000
	Linear-by-Linear Association	9.074	1	.003
	N of Valid Cases	1680		
No	Pearson Chi-Square	1.286[c]	2	.526
	Likelihood Ratio	1.449	2	.484
	Linear-by-Linear Association	.682	1	.409
	N of Valid Cases	3267		
Total	Pearson Chi-Square	4962.611[d]	6	.000
	Likelihood Ratio	32.718	6	.000
	Linear-by-Linear Association	12.969	1	.000
	N of Valid Cases	4948		

a. No statistics are computed because Growth and Visual WS are constants.

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 41.44.

c. 0 cells (.0%) have expected count less than 5. The minimum expected count is 9.26.

d. 6 cells (50.0%) have expected count less than 5. The minimum expected count is .00.

C 2

Cross Tabulation with *Chi Square Test* for *Performing Arts Workshop, Growth,* and *Teacher Experience* in *Arts/Non-Arts Schools*

Case Processing Summary

Performing Workshop	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Growth/Performing WS/Teachers Two Years or More	4948	100.0%	0	.0%	4948	100.0%

Growth/Performing WS/Teachers Two Years or More Cross Tabulation

Teachers Two Years or More				Performing WS 0	Performing WS Yes	Performing WS No	Total
0	Growth	0	Count	1			1
			Expected Count	1.0			1.0
			% within Growth	100.0%			100.0%
	Total		Count	1			1
			Expected Count	1.0			1.0
			% within Growth	100.0%			100.0%
Yes	Growth	Yes	Count		163	992	1155
			Expected Count		176.7	978.3	1155.0
			% within Growth		14.1%	85.9%	100.0%
		No	Count		47	360	407
			Expected Count		62.3	344.7	407.0
			% within Growth		11.5%	88.5%	100.0%
		3	Count		47	71	118
			Expected Count		18.1	99.9	118.0
			% within Growth		39.8%	60.2%	100.0%
	Total		Count		257	1423	1680
			Expected Count		257.0	1423.0	1680.0
			% within Growth		15.3%	84.7%	100.0%
No	Growth	Yes	Count		114	2362	2476
			Expected Count		109.1	2366.9	2476.0
			% within Growth		4.6%	95.4%	100.0%
		No	Count		25	553	578
			Expected Count		25.5	552.5	578.0
			% within Growth		4.3%	95.7%	100.0%
		3	Count		5	208	213
			Expected Count		9.4	203.6	213.0
			% within Growth		2.3%	97.7%	100.0%
	Total		Count		144	3123	3267
			Expected Count		144.0	3123.0	3267.0
			% within Growth		4.4%	95.6%	100.0%
Total	Growth	0	Count	1	0	0	1
			Expected Count	.0	.1	.9	1.0
			% within Growth	100.0%	.0%	.0%	100.0%
		Yes	Count	0	277	3354	3631

		Expected Count	.7	294.3	3336.0	3631.0
		% within Growth	.0%	7.6%	92.4%	100.0%
	No	Count	0	72	913	985
		Expected Count	.2	79.8	905.0	985.0
		% within Growth	.0%	7.3%	92.7%	100.0%
	3	Count	0	52	279	331
		Expected Count	.1	26.8	304.1	331.0
		% within Growth	.0%	15.7%	84.3%	100.0%
Total		Count	1	401	4546	4948
		Expected Count	1.0	401.0	4546.0	4948.0
		% within Growth	.0%	8.1%	91.9%	100.0%

Chi Square Tests

Teachers Two Years or More		Value	df	Asymp. Sig. (2-sided)
0	Pearson Chi-Square	.[a]		
	N of Valid Cases	1		
Yes	Pearson Chi-Square	60.478[b]	2	.000
	Likelihood Ratio	47.427	2	.000
	Linear-by-Linear Association	22.154	1	.000
	N of Valid Cases	1680		
No	Pearson Chi-Square	2.382[c]	2	.304
	Likelihood Ratio	2.803	2	.246
	Linear-by-Linear Association	1.812	1	.178
	N of Valid Cases	3267		
Total	Pearson Chi-Square	4975.648[d]	6	.000
	Likelihood Ratio	41.629	6	.000
	Linear-by-Linear Association	12.030	1	.001
	N of Valid Cases	4948		

a. No statistics are computed because Growth and Performing WS are constants.

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 18.05.

c. 0 cells (.0%) have expected count less than 5. The minimum expected count is 9.39.

d. 6 cells (50.0%) have expected count less than 5. The minimum expected count is .00.

C 3

Cross Tabulation with *Chi Square Test* for *Literary Arts Workshop, Growth,* and *Teacher Experience* in *Arts/Non-Arts Schools*

Case Processing Summary

Literary Arts Workshop	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Growth/Literary WS/Teachers Two Years or More	4948	100.0%	0	.0%	4948	100.0%

Growth/Literary WS/Teachers Two Years or More Cross Tabulation

Teachers Two Years or More				Literary WS 0	Yes	No	Total
0	Growth	0	Count	1			1
			Expected Count	1.0			1.0
			% within Growth	100.0%			100.0%
	Total		Count	1			1
			Expected Count	1.0			1.0
			% within Growth	100.0%			100.0%
Yes	Growth	Yes	Count		173	982	1155
			Expected Count		167.1	987.9	1155.0
			% within Growth		15.0%	85.0%	100.0%
		No	Count		44	363	407
			Expected Count		58.9	348.1	407.0
			% within Growth		10.8%	89.2%	100.0%
		3	Count		26	92	118
			Expected Count		17.1	100.9	118.0
			% within Growth		22.0%	78.0%	100.0%
	Total		Count		243	1437	1680
			Expected Count		243.0	1437.0	1680.0
			% within Growth		14.5%	85.5%	100.0%
No	Growth	Yes	Count		162	2314	2476
			Expected Count		162.9	2313.1	2476.0
			% within Growth		6.5%	93.5%	100.0%
		No	Count		42	536	578
			Expected Count		38.0	540.0	578.0
			% within Growth		7.3%	92.7%	100.0%
		3	Count		11	202	213
			Expected Count		14.0	199.0	213.0
			% within Growth		5.2%	94.8%	100.0%
	Total		Count		215	3052	3267
			Expected Count		215.0	3052.0	3267.0
			% within Growth		6.6%	93.4%	100.0%
Total	Growth	0	Count	1	0	0	1
			Expected Count	.0	.1	.9	1.0
			% within Growth	100.0%	.0%	.0%	100.0%
		Yes	Count	0	335	3296	3631

		Expected Count	.7	336.1	3294.2	3631.0
		% within Growth	.0%	9.2%	90.8%	100.0%
	No	Count	0	86	899	985
		Expected Count	.2	91.2	893.6	985.0
		% within Growth	.0%	8.7%	91.3%	100.0%
	3	Count	0	37	294	331
		Expected Count	.1	30.6	300.3	331.0
		% within Growth	.0%	11.2%	88.8%	100.0%
Total		Count	1	458	4489	4948
		Expected Count	1.0	458.0	4489.0	4948.0
		% within Growth	.0%	9.3%	90.7%	100.0%

Chi Square Tests

Teachers Two Years or More		Value	df	Asymp. Sig. (2-sided)
0	Pearson Chi-Square	.[a]		
	N of Valid Cases	1		
Yes	Pearson Chi-Square	10.103[b]	2	.006
	Likelihood Ratio	9.827	2	.007
	Linear-by-Linear Association	.114	1	.735
	N of Valid Cases	1680		
No	Pearson Chi-Square	1.143[c]	2	.565
	Likelihood Ratio	1.182	2	.554
	Linear-by-Linear Association	.062	1	.803
	N of Valid Cases	3267		
Total	Pearson Chi-Square	4949.783[d]	6	.000
	Likelihood Ratio	20.720	6	.002
	Linear-by-Linear Association	.166	1	.684
	N of Valid Cases	4948		

a. No statistics are computed because Growth and Literary WS are constants.

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 17.07.

c. 0 cells (.0%) have expected count less than 5. The minimum expected count is 14.02.

d. 6 cells (50.0%) have expected count less than 5. The minimum expected count is .00.

C 4

Cross Tabulation with *Chi Square Test* for *Technical Arts Workshop, Growth,* and *Teacher Experience* in *Arts/Non-Arts Schools*

Case Processing Summary

Technical Workshop	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Growth/Technical WS/ Teachers Two Years or More	4948	100.0%	0	.0%	4948	100.0%

Growth/Teachers Two Years or More Cross Tabulation

Teachers Two Years or More				Technical WS			Total
				0	Yes	No	
0	Growth	0	Count	1			1
			Expected Count	1.0			1.0
			% within Growth	100.0%			100.0%
	Total		Count	1			1
			Expected Count	1.0			1.0
			% within Growth	100.0%			100.0%
Yes	Growth	Yes	Count		391	764	1155
			Expected Count		384.3	770.7	1155.0
			% within Growth		33.9%	66.1%	100.0%
		No	Count		125	282	407
			Expected Count		135.4	271.6	407.0
			% within Growth		30.7%	69.3%	100.0%
		3	Count		43	75	118
			Expected Count		39.3	78.7	118.0
			% within Growth		36.4%	63.6%	100.0%
	Total		Count		559	1121	1680
			Expected Count		559.0	1121.0	1680.0
			% within Growth		33.3%	66.7%	100.0%
No	Growth	Yes	Count		43	2433	2476
			Expected Count		38.7	2437.3	2476.0
			% within Growth		1.7%	98.3%	100.0%
		No	Count		3	575	578
			Expected Count		9.0	569.0	578.0
			% within Growth		.5%	99.5%	100.0%

		3	Count		5	208	213
			Expected Count		3.3	209.7	213.0
			% within Growth		2.3%	97.7%	100.0%
	Total		Count		51	3216	3267
			Expected Count		51.0	3216.0	3267.0
			% within Growth		1.6%	98.4%	100.0%
Total	Growth	0	Count	1	0	0	1
			Expected Count	.0	.1	.9	1.0
			% within Growth	100.0%	.0%	.0%	100.0%
		Yes	Count	0	434	3197	3631
			Expected Count	.7	447.6	3182.6	3631.0
			% within Growth	.0%	12.0%	88.0%	100.0%
		No	Count	0	128	857	985
			Expected Count	.2	121.4	863.4	985.0
			% within Growth	.0%	13.0%	87.0%	100.0%
		3	Count	0	48	283	331
			Expected Count	.1	40.8	290.1	331.0
			% within Growth	.0%	14.5%	85.5%	100.0%
	Total		Count	1	610	4337	4948
			Expected Count	1.0	610.0	4337.0	4948.0
			% within Growth	.0%	12.3%	87.7%	100.0%

Chi Square Tests

Teachers Two Years or More		Value	df	Asymp. Sig. (2-sided)
0	Pearson Chi-Square	.[a]		
	N of Valid Cases	1		
Yes	Pearson Chi-Square	1.910[b]	2	.385
	Likelihood Ratio	1.918	2	.383
	Linear-by-Linear Association	.062	1	.803
	N of Valid Cases	1680		
No	Pearson Chi-Square	5.438[c]	2	.066
	Likelihood Ratio	6.725	2	.035
	Linear-by-Linear Association	.415	1	.520
	N of Valid Cases	3267		
Total	Pearson Chi-Square	4950.325[d]	6	.000
	Likelihood Ratio	21.270	6	.002
	Linear-by-Linear Association	1.768	1	.184
	N of Valid Cases	4948		

a. No statistics are computed because Growth and Technical WS are constants.

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 39.26.

c. 1 cells (16.7%) have expected count less than 5. The minimum expected count is 3.33.

d. 6 cells (50.0%) have expected count less than 5. The minimum expected count is .00.

C 5

Cross Tabulation with *Chi Square Test* for *Dance Art Form, Growth,* and *Teacher Experience* in *Arts/Non-Arts Schools*

Case Processing Summary

Dance Art Form	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Growth/Dance AF/Teachers Two Years or More	4948	100.0%	0	.0%	4948	100.0%

Growth/Dance AF/Teachers Two Years or More Cross Tabulation

Teachers Two Years or More				Dance AF 0	Dance AF Yes	Dance AF No	Total
0	Growth	0	Count	1			1
			Expected Count	1.0			1.0
			% within Growth	100.0%			100.0%
	Total		Count	1			1
			Expected Count	1.0			1.0
			% within Growth	100.0%			100.0%
Yes	Growth	Yes	Count		280	875	1155
			Expected Count		276.4	878.6	1155.0
			% within Growth		24.2%	75.8%	100.0%
		No	Count		91	316	407
			Expected Count		97.4	309.6	407.0
			% within Growth		22.4%	77.6%	100.0%
		3	Count		31	87	118
			Expected Count		28.2	89.8	118.0
			% within Growth		26.3%	73.7%	100.0%
	Total		Count		402	1278	1680
			Expected Count		402.0	1278.0	1680.0
			% within Growth		23.9%	76.1%	100.0%
No	Growth	Yes	Count		304	2172	2476
			Expected Count		310.0	2166.0	2476.0
			% within Growth		12.3%	87.7%	100.0%
		No	Count		84	494	578
			Expected Count		72.4	505.6	578.0
			% within Growth		14.5%	85.5%	100.0%
		3	Count		21	192	213
			Expected Count		26.7	186.3	213.0
			% within Growth		9.9%	90.1%	100.0%
	Total		Count		409	2858	3267
			Expected Count		409.0	2858.0	3267.0
			% within Growth		12.5%	87.5%	100.0%
Total	Growth	0	Count	1	0	0	1
			Expected Count	.0	.2	.8	1.0
			% within Growth	100.0%	.0%	.0%	100.0%
		Yes	Count	0	584	3047	3631

		Expected Count	.7	595.1	3035.1	3631.0
		% within Growth	.0%	16.1%	83.9%	100.0%
	No	Count	0	175	810	985
		Expected Count	.2	161.4	823.4	985.0
		% within Growth	.0%	17.8%	82.2%	100.0%
	3	Count	0	52	279	331
		Expected Count	.1	54.3	276.7	331.0
		% within Growth	.0%	15.7%	84.3%	100.0%
Total		Count	1	811	4136	4948
		Expected Count	1.0	811.0	4136.0	4948.0
		% within Growth	.0%	16.4%	83.6%	100.0%

Chi Square Tests

Teachers Two Years or More		Value	df	Asymp. Sig. (2-sided)
0	Pearson Chi-Square	.[a]		
	N of Valid Cases	1		
Yes	Pearson Chi-Square	.969[b]	2	.616
	Likelihood Ratio	.970	2	.616
	Linear-by-Linear Association	.006	1	.936
	N of Valid Cases	1680		
No	Pearson Chi-Square	3.648[c]	2	.161
	Likelihood Ratio	3.652	2	.161
	Linear-by-Linear Association	.001	1	.978
	N of Valid Cases	3267		
Total	Pearson Chi-Square	4949.722[d]	6	.000
	Likelihood Ratio	20.709	6	.002
	Linear-by-Linear Association	.177	1	.674
	N of Valid Cases	4948		

a. No statistics are computed because Growth and Dance AF are constants.

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 28.24.

c. 0 cells (.0%) have expected count less than 5. The minimum expected count is 26.67.

d. 6 cells (50.0%) have expected count less than 5. The minimum expected count is .00.

C 6

Cross Tabulation with *Chi Square Test* for *Theater Art Form, Growth,* and *Teacher Experience* in *Arts/Non-Arts School*s

Case Processing Summary

Theater Art Form	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Growth/Theater AF/Teachers Two Years or More	4948	100.0%	0	.0%	4948	100.0%

Growth/Theater AF/Teachers Two Years or More Cross Tabulation

Teachers Two Years or More				Theater AF			Total
				0	Yes	No	
0	Growth	0	Count	1			1
			Expected Count	1.0			1.0
			% within Growth	100.0%			100.0%
	Total		Count	1			1
			Expected Count	1.0			1.0
			% within Growth	100.0%			100.0%
Yes	Growth	Yes	Count		455	700	1155
			Expected Count		459.3	695.8	1155.0
			% within Growth		39.4%	60.6%	100.0%
		No	Count		149	258	407
			Expected Count		161.8	245.2	407.0
			% within Growth		36.6%	63.4%	100.0%
		3	Count		64	54	118
			Expected Count		46.9	71.1	118.0
			% within Growth		54.2%	45.8%	100.0%
	Total		Count		668	1012	1680
			Expected Count		668.0	1012.0	1680.0
			% within Growth		39.8%	60.2%	100.0%
No	Growth	Yes	Count		695	1781	2476
			Expected Count		713.2	1762.8	2476.0
			% within Growth		28.1%	71.9%	100.0%

		No	Count		170	408	578
			Expected Count		166.5	411.5	578.0
			% within Growth		29.4%	70.6%	100.0%
		3	Count		76	137	213
			Expected Count		61.4	151.6	213.0
			% within Growth		35.7%	64.3%	100.0%
	Total		Count		941	2326	3267
			Expected Count		941.0	2326.0	3267.0
			% within Growth		28.8%	71.2%	100.0%
Total	Growth	0	Count	1	0	0	1
			Expected Count	.0	.3	.7	1.0
			% within Growth	100.0%	.0%	.0%	100.0%
		Yes	Count	0	1150	2481	3631
			Expected Count	.7	1180.7	2449.5	3631.0
			% within Growth	.0%	31.7%	68.3%	100.0%
		No	Count	0	319	666	985
			Expected Count	.2	320.3	664.5	985.0
			% within Growth	.0%	32.4%	67.6%	100.0%
		3	Count	0	140	191	331
			Expected Count	.1	107.6	223.3	331.0
			% within Growth	.0%	42.3%	57.7%	100.0%
	Total		Count	1	1609	3338	4948
			Expected Count	1.0	1609.0	3338.0	4948.0
			% within Growth	.0%	32.5%	67.5%	100.0%

Chi Square Tests

Teachers Two Years or More		Value	df	Asymp. Sig. (2-sided)
0	Pearson Chi-Square	.[a]		
	N of Valid Cases	1		
Yes	Pearson Chi-Square	12.077[b]	2	.002
	Likelihood Ratio	11.827	2	.003
	Linear-by-Linear Association	3.000	1	.083
	N of Valid Cases	1680		
No	Pearson Chi-Square	5.667[c]	2	.059
	Likelihood Ratio	5.469	2	.065
	Linear-by-Linear Association	4.681	1	.030
	N of Valid Cases	3267		
Total	Pearson Chi-Square	4963.616[d]	6	.000
	Likelihood Ratio	34.027	6	.000
	Linear-by-Linear Association	9.622	1	.002
	N of Valid Cases	4948		

a. No statistics are computed because Growth and Theater AF are constants.

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 46.92.

c. 0 cells (.0%) have expected count less than 5. The minimum expected count is 61.35.

d. 6 cells (50.0%) have expected count less than 5. The minimum expected count is .00.

C 7

Cross Tabulation with *Chi Square Test* for *Music Art Form, Growth,* and *Teacher Experience* in *Arts/Non-Arts Schools*

Case Processing Summary

Music Art Form	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Growth/Music AF/Teachers Two Years or More	4948	100.0%	0	.0%	4948	100.0%

Growth/Music AF/Teachers Two Years or More Crosstabulation

Teachers Two Years or More				Music AF			Total
				0	Yes	No	
0	Growth	0	Count	1			1
			Expected Count	1.0			1.0
			% within Growth	100.0%			100.0%
	Total		Count	1			1
			Expected Count	1.0			1.0
			% within Growth	100.0%			100.0%
Yes	Growth	Yes	Count		822	333	1155
			Expected Count		828.4	326.6	1155.0
			% within Growth		71.2%	28.8%	100.0%
		No	Count		300	107	407
			Expected Count		291.9	115.1	407.0
			% within Growth		73.7%	26.3%	100.0%
		3	Count		83	35	118
			Expected Count		84.6	33.4	118.0
			% within Growth		70.3%	29.7%	100.0%
	Total		Count		1205	475	1680
			Expected Count		1205.0	475.0	1680.0
			% within Growth		71.7%	28.3%	100.0%
No	Growth	Yes	Count		1247	1229	2476
			Expected Count		1233.8	1242.2	2476.0
			% within Growth		50.4%	49.6%	100.0%

		No	Count		297	281	578
			Expected Count		288.0	290.0	578.0
			% within Growth		51.4%	48.6%	100.0%
		3	Count		84	129	213
			Expected Count		106.1	106.9	213.0
			% within Growth		39.4%	60.6%	100.0%
	Total		Count		1628	1639	3267
			Expected Count		1628.0	1639.0	3267.0
			% within Growth		49.8%	50.2%	100.0%
Total	Growth	0	Count	1	0	0	1
			Expected Count	.0	.6	.4	1.0
			% within Growth	100.0%	.0%	.0%	100.0%
		Yes	Count	0	2069	1562	3631
			Expected Count	.7	2078.9	1551.3	3631.0
			% within Growth	.0%	57.0%	43.0%	100.0%
		No	Count	0	597	388	985
			Expected Count	.2	564.0	420.8	985.0
			% within Growth	.0%	60.6%	39.4%	100.0%
		3	Count	0	167	164	331
			Expected Count	.1	189.5	141.4	331.0
			% within Growth	.0%	50.5%	49.5%	100.0%
	Total		Count	1	2833	2114	4948
			Expected Count	1.0	2833.0	2114.0	4948.0
			% within Growth	.0%	57.3%	42.7%	100.0%

Chi-Square Tests

Teachers Two Years or More		Value	df	Asymp. Sig. (2-sided)
0	Pearson Chi-Square	.[a]		
	N of Valid Cases	1		
Yes	Pearson Chi-Square	1.079[b]	2	.583
	Likelihood Ratio	1.089	2	.580
	Linear-by-Linear Association	.179	1	.672
	N of Valid Cases	1680		
No	Pearson Chi-Square	10.044[c]	2	.007
	Likelihood Ratio	10.116	2	.006
	Linear-by-Linear Association	4.446	1	.035
	N of Valid Cases	3267		
Total	Pearson Chi-Square	4958.899[d]	6	.000
	Likelihood Ratio	29.879	6	.000
	Linear-by-Linear Association	.460	1	.498
	N of Valid Cases	4948		

a. No statistics are computed because Growth and Music AF are constants.

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 33.36.

c. 0 cells (.0%) have expected count less than 5. The minimum expected count is 106.14.

d. 6 cells (50.0%) have expected count less than 5. The minimum expected count is .00.

C 8

Cross Tabulation with *Chi Square Test* for *Visual Art Form, Growth,* and *Teacher Experience* in *Arts/Non-Arts School*s

Case Processing Summary

Visual Art Form	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Growth/Visual AF/Teachers Two Years or More	4807	97.2%	141	2.8%	4948	100.0%

Growth/Visual AF/Teachers Two Years or More Cross Tabulation

Teachers Two Years or More				Visual AF			Total
				0	Yes	No	
0	Growth	0	Count	1			1
			Expected Count	1.0			1.0
			% within Growth	100.0%			100.0%
	Total		Count	1			1
			Expected Count	1.0			1.0
			% within Growth	100.0%			100.0%
Yes	Growth	Yes	Count		1155		1155
			Expected Count		1155.0		1155.0
			% within Growth		100.0%		100.0%
		No	Count		407		407
			Expected Count		407.0		407.0
			% within Growth		100.0%		100.0%
		3	Count		118		118
			Expected Count		118.0		118.0
			% within Growth		100.0%		100.0%
	Total		Count		1680		1680
			Expected Count		1680.0		1680.0
			% within Growth		100.0%		100.0%
No	Growth	Yes	Count		1590	775	2365
			Expected Count		1590.3	774.7	2365.0
			% within Growth		67.2%	32.8%	100.0%
		No	Count		371	184	555
			Expected Count		373.2	181.8	555.0

			% within Growth		66.8%	33.2%	100.0%
		3	Count		141	65	206
			Expected Count		138.5	67.5	206.0
			% within Growth		68.4%	31.6%	100.0%
	Total		Count		2102	1024	3126
			Expected Count		2102.0	1024.0	3126.0
			% within Growth		67.2%	32.8%	100.0%
Total	Growth	0	Count	1	0	0	1
			Expected Count	.0	.8	.2	1.0
			% within Growth	100.0%	.0%	.0%	100.0%
		Yes	Count	0	2745	775	3520
			Expected Count	.7	2769.4	749.8	3520.0
			% within Growth	.0%	78.0%	22.0%	100.0%
		No	Count	0	778	184	962
			Expected Count	.2	756.9	204.9	962.0
			% within Growth	.0%	80.9%	19.1%	100.0%
		3	Count	0	259	65	324
			Expected Count	.1	254.9	69.0	324.0
			% within Growth	.0%	79.9%	20.1%	100.0%
	Total		Count	1	3782	1024	4807
			Expected Count	1.0	3782.0	1024.0	4807.0
			% within Growth	.0%	78.7%	21.3%	100.0%

Chi Square Tests

Teachers Two Years or More		Value	df	Asymp. Sig. (2-sided)
0	Pearson Chi-Square	.[a]		
	N of Valid Cases	1		
Yes	Pearson Chi-Square	.[b]		
	N of Valid Cases	1680		
No	Pearson Chi-Square	.175[c]	2	.916
	Likelihood Ratio	.176	2	.916
	Linear-by-Linear Association	.032	1	.858
	N of Valid Cases	3126		
Total	Pearson Chi-Square	4811.086[d]	6	.000
	Likelihood Ratio	23.108	6	.001
	Linear-by-Linear Association	2.601	1	.107
	N of Valid Cases	4807		

a. No statistics are computed because Growth and Visual AF are constants.

b. No statistics are computed because Visual AF is a constant.

c. 0 cells (.0%) have expected count less than 5. The minimum expected count is 67.48.

d. 6 cells (50.0%) have expected count less than 5. The minimum expected count is .00.

C 9

Cross Tabulation with *Chi Square Test* for *Technical Art Form, Growth,* and *Teacher Experience* in *Arts/Non-Arts Schools*

Case Processing Summary

Technical Art Form	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Growth/Technical AF/ Teachers Two Years or More	4948	100.0%	0	.0%	4948	100.0%

Growth/Technical AF/Teachers Two Years or More Cross Tabulation

Teachers Two Years or More				Technical AF 0	Technical AF Yes	Technical AF No	Total
0	Growth	0	Count	1			1
			Expected Count	1.0			1.0
			% within Growth	100.0%			100.0%
	Total		Count	1			1
			Expected Count	1.0			1.0
			% within Growth	100.0%			100.0%
Yes	Growth	Yes	Count		1103	52	1155
			Expected Count		1102.1	52.9	1155.0
			% within Growth		95.5%	4.5%	100.0%
		No	Count		388	19	407
			Expected Count		388.3	18.7	407.0
			% within Growth		95.3%	4.7%	100.0%
		3	Count		112	6	118
			Expected Count		112.6	5.4	118.0
			% within Growth		94.9%	5.1%	100.0%
	Total		Count		1603	77	1680
			Expected Count		1603.0	77.0	1680.0
			% within Growth		95.4%	4.6%	100.0%
No	Growth	Yes	Count		1508	968	2476
			Expected Count		1493.0	983.0	2476.0
			% within Growth		60.9%	39.1%	100.0%
		No	Count		340	238	578
			Expected Count		348.5	229.5	578.0
			% within Growth		58.8%	41.2%	100.0%
		3	Count		122	91	213
			Expected Count		128.4	84.6	213.0
			% within Growth		57.3%	42.7%	100.0%
	Total		Count		1970	1297	3267
			Expected Count		1970.0	1297.0	3267.0
			% within Growth		60.3%	39.7%	100.0%
Total	Growth	0	Count	1	0	0	1
			Expected Count	.0	.7	.3	1.0
			% within Growth	100.0%	.0%	.0%	100.0%
		Yes	Count	0	2611	1020	3631

		Expected Count	.7	2622.0	1008.3	3631.0
		% within Growth	.0%	71.9%	28.1%	100.0%
	No	Count	0	728	257	985
		Expected Count	.2	711.3	273.5	985.0
		% within Growth	.0%	73.9%	26.1%	100.0%
	3	Count	0	234	97	331
		Expected Count	.1	239.0	91.9	331.0
		% within Growth	.0%	70.7%	29.3%	100.0%
Total		Count	1	3573	1374	4948
		Expected Count	1.0	3573.0	1374.0	4948.0
		% within Growth	.0%	72.2%	27.8%	100.0%

Chi Square Tests

Teachers Two Years or More		Value	df	Asymp. Sig. (2-sided)
0	Pearson Chi-Square	.[a]		
	N of Valid Cases	1		
Yes	Pearson Chi-Square	.092[b]	2	.955
	Likelihood Ratio	.090	2	.956
	Linear-by-Linear Association	.084	1	.771
	N of Valid Cases	1680		
No	Pearson Chi-Square	1.718[c]	2	.424
	Likelihood Ratio	1.710	2	.425
	Linear-by-Linear Association	1.707	1	.191
	N of Valid Cases	3267		
Total	Pearson Chi-Square	4949.960[d]	6	.000
	Likelihood Ratio	20.986	6	.002
	Linear-by-Linear Association	.063	1	.801
	N of Valid Cases	4948		

a. No statistics are computed because Growth and Technical AF are constants.

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 5.41.

c. 0 cells (.0%) have expected count less than 5. The minimum expected count is 84.56.

d. 6 cells (50.0%) have expected count less than 5. The minimum expected count is .00.

C 10

Cross Tabulation with *Chi Square Test* for *Music Arts Activities, Growth,* and *Teacher Experience* in *Arts/Non-Arts Schools*

Case Processing Summary

Music Arts Activities	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Growth/Music AA/Teachers Two Years or More	4948	100.0%	0	.0%	4948	100.0%

Growth/Music AA/Teachers Two Years or More Cross tabulation

Teachers Two Years or More				Music AA			
				0	Yes	No	Total
0	Growth	0	Count	1			1
			Expected Count	1.0			1.0
			% within Growth	100.0%			100.0%
	Total		Count	1			1
			Expected Count	1.0			1.0
			% within rowth	100.0%			100.0%
Yes	Growth	Yes	Count		975	180	1155
			Expected Count		982.4	172.6	1155.0
			% within Growth		84.4%	15.6%	100.0%
		No	Count		350	57	407
			Expected Count		346.2	60.8	407.0
			% within Growth		86.0%	14.0%	100.0%
		3	Count		104	14	118
			Expected Count		100.4	17.6	118.0
			% within Growth		88.1%	11.9%	100.0%
	Total		Count		1429	251	1680
			Expected Count		1429.0	251.0	1680.0
			% within Growth		85.1%	14.9%	100.0%
No	Growth	Yes	Count		1927	549	2476
			Expected Count		1917.4	558.6	2476.0
			% within Growth		77.8%	22.2%	100.0%
		No	Count		452	126	578
			Expected Count		447.6	130.4	578.0
			% within rowth		78.2%	21.8%	100.0%

		3	Count		151	62	213
			Expected Count		164.9	48.1	213.0
			% within Growth		70.9%	29.1%	100.0%
	Total		Count		2530	737	3267
			Expected Count		2530.0	737.0	3267.0
			% within Growth		77.4%	22.6%	100.0%
Total	Growth	0	Count	1	0	0	1
			Expected Count	.0	.8	.2	1.0
			% within Growth	100.0%	.0%	.0%	100.0%
		Yes	Count	0	2902	729	3631
			Expected Count	.7	2905.2	725.0	3631.0
			% within Growth	.0%	79.9%	20.1%	100.0%
		No	Count	0	802	183	985
			Expected Count	.2	788.1	196.7	985.0
			% within Growth	.0%	81.4%	18.6%	100.0%
		3	Count	0	255	76	331
			Expected Count	.1	264.8	66.1	331.0
			% within Growth	.0%	77.0%	23.0%	100.0%
	Total		Count	1	3959	988	4948
			Expected Count	1.0	3959.0	988.0	4948.0
			% within Growth	.0%	80.0%	20.0%	100.0%

Chi Square Tests

Teachers Two Years or More		Value	df	Asymp. Sig. (2-sided)
0	Pearson Chi-Square	.[a]		
	N of Valid Cases	1		
Yes	Pearson Chi-Square	1.536[b]	2	.464
	Likelihood Ratio	1.592	2	.451
	Linear-by-Linear Association	1.522	1	.217
	N of Valid Cases	1680		
No	Pearson Chi-Square	5.631[c]	2	.060
	Likelihood Ratio	5.325	2	.070
	Linear-by-Linear Association	2.820	1	.093
	N of Valid Cases	3267		
Total	Pearson Chi-Square	4951.072[d]	6	.000
	Likelihood Ratio	22.042	6	.001
	Linear-by-Linear Association	.208	1	.648
	N of Valid Cases	4948		

a. No statistics are computed because Growth and Music AA are constants.

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 17.63.

c. 0 cells (.0%) have expected count less than 5. The minimum expected count is 48.05.

d. 6 cells (50.0%) have expected count less than 5. The minimum expected count is .00.

C 11

Cross Tabulation with *Chi Square Test* for *Composing Arts Activities,Growth,* and *Teacher Experience* in *Arts/Non-Arts Schools*

Case Processing Summary

Composing Arts Activities	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Growth/Composing AA/ Teachers Two Years or More	4948	100.0%	0	.0%	4948	100.0%

Growth/Composing AA/Teachers Two Years or More Cross Tabulation

Teachers Two Years or More				Composing AA 0	Composing AA Yes	Composing AA No	Total
0	Growth	0	Count	1			1
			Expected Count	1.0			1.0
			% within Growth	100.0%			100.0%
	Total		Count	1			1
			Expected Count	1.0			1.0
			% within Growth	100.0%			100.0%
Yes	Growth	Yes	Count		484	671	1155
			Expected Count		495.7	659.3	1155.0
			% within Growth		41.9%	58.1%	100.0%
		No	Count		199	208	407
			Expected Count		174.7	232.3	407.0
			% within Growth		48.9%	51.1%	100.0%
		3	Count		38	80	118
			Expected Count		50.6	67.4	118.0
			% within Growth		32.2%	67.8%	100.0%
	Total		Count		721	959	1680
			Expected Count		721.0	959.0	1680.0
			% within Growth		42.9%	57.1%	100.0%
No	Growth	Yes	Count			2476	2476
			Expected Count			2476.0	2476.0
			% within Growth			100.0%	100.0%
		No	Count			578	578
			Expected Count			578.0	578.0
			% within Growth			100.0%	100.0%
		3	Count			213	213
			Expected Count			213.0	213.0
			% within Growth			100.0%	100.0%
	Total		Count			3267	3267
			Expected Count			3267.0	3267.0
			% within Growth			100.0%	100.0%
Total	Growth	0	Count	1	0	0	1
			Expected Count	.0	.1	.9	1.0
			% within Growth	100.0%	.0%	.0%	100.0%
		Yes	Count	0	484	3147	3631

		Expected Count	.7	529.1	3101.2	3631.0
		% within Growth	.0%	13.3%	86.7%	100.0%
	No	Count	0	199	786	985
		Expected Count	.2	143.5	841.3	985.0
		% within Growth	.0%	20.2%	79.8%	100.0%
	3	Count	0	38	293	331
		Expected Count	.1	48.2	282.7	331.0
		% within Growth	.0%	11.5%	88.5%	100.0%
Total		Count	1	721	4226	4948
		Expected Count	1.0	721.0	4226.0	4948.0
		% within Growth	.0%	14.6%	85.4%	100.0%

Chi Square Tests

Teachers Two Years or More		Value	df	Asymp. Sig. (2-sided)
0	Pearson Chi-Square	.[a]		
	N of Valid Cases	1		
Yes	Pearson Chi-Square	11.947[b]	2	.003
	Likelihood Ratio	12.061	2	.002
	Linear-by-Linear Association	.006	1	.939
	N of Valid Cases	1680		
No	Pearson Chi-Square	.[c]		
	N of Valid Cases	3267		
Total	Pearson Chi-Square	4980.135[d]	6	.000
	Likelihood Ratio	49.182	6	.000
	Linear-by-Linear Association	4.783	1	.029
	N of Valid Cases	4948		

a. No statistics are computed because Growth and Composing AA are constants.

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 50.64.

c. No statistics are computed because Composing AA is a constant.

d. 6 cells (50.0%) have expected count less than 5. The minimum expected count is .00.

C 12

Cross Tabulation with *Chi Square Test* for *Dance Arts Activities, Growth,* and *Teacher Experience* in *Arts/Non-Arts Schools*

Case Processing Summary

Dance Arts Activities	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Growth/Dance/Move AA/ Teachers Two Years or More	4948	100.0%	0	.0%	4948	100.0%

Growth/Dance/Move AA/Teachers Two Years or More Cross Tabulation

Teachers Two Years or More				Dance/Move AA			Total
				0	Yes	No	
0	Growth	0	Count	1			1
			Expected Count	1.0			1.0
			% within Growth	100.0%			100.0%
	Total		Count	1			1
			Expected Count	1.0			1.0
			% within Growth	100.0%			100.0%
Yes	Growth	Yes	Count		327	828	1155
			Expected Count		323.8	831.2	1155.0
			% within Growth		28.3%	71.7%	100.0%
		No	Count		103	304	407
			Expected Count		114.1	292.9	407.0
			% within Growth		25.3%	74.7%	100.0%
		3	Count		41	77	118
			Expected Count		33.1	84.9	118.0
			% within Growth		34.7%	65.3%	100.0%
	Total		Count		471	1209	1680
			Expected Count		471.0	1209.0	1680.0
			% within Growth		28.0%	72.0%	100.0%
No	Growth	Yes	Count		901	1575	2476
			Expected Count		905.7	1570.3	2476.0
			% within Growth		36.4%	63.6%	100.0%

		No	Count		210	368	578
			Expected Count		211.4	366.6	578.0
			% within Growth		36.3%	63.7%	100.0%
		3	Count		84	129	213
			Expected Count		77.9	135.1	213.0
			% within Growth		39.4%	60.6%	100.0%
	Total		Count		1195	2072	3267
			Expected Count		1195.0	2072.0	3267.0
			% within Growth		36.6%	63.4%	100.0%
Total	Growth	0	Count	1	0	0	1
			Expected Count	.0	.3	.7	1.0
			% within Growth	100.0%	.0%	.0%	100.0%
		Yes	Count	0	1228	2403	3631
			Expected Count	.7	1222.6	2407.7	3631.0
			% within Growth	.0%	33.8%	66.2%	100.0%
		No	Count	0	313	672	985
			Expected Count	.2	331.7	653.1	985.0
			% within Growth	.0%	31.8%	68.2%	100.0%
		3	Count	0	125	206	331
			Expected Count	.1	111.4	219.5	331.0
			% within Growth	.0%	37.8%	62.2%	100.0%
	Total		Count	1	1666	3281	4948
			Expected Count	1.0	1666.0	3281.0	4948.0
			% within Growth	.0%	33.7%	66.3%	100.0%

Chi Square Tests

Teachers Two Years or More		Value	df	Asymp. Sig. (2-sided)
0	Pearson Chi-Square	.[a]		
	N of Valid Cases	1		
Yes	Pearson Chi-Square	4.179[b]	2	.124
	Likelihood Ratio	4.099	2	.129
	Linear-by-Linear Association	.175	1	.676
	N of Valid Cases	1680		
No	Pearson Chi-Square	.803[c]	2	.669
	Likelihood Ratio	.796	2	.672
	Linear-by-Linear Association	.445	1	.505
	N of Valid Cases	3267		
Total	Pearson Chi-Square	4952.102[d]	6	.000
	Likelihood Ratio	23.085	6	.001
	Linear-by-Linear Association	.095	1	.758
	N of Valid Cases	4948		

a. No statistics are computed because Growth and Dance/Move AA are constants.

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 33.08.

c. 0 cells (.0%) have expected count less than 5. The minimum expected count is 77.91.

d. 6 cells (50.0%) have expected count less than 5. The minimum expected count is .00.

C 13

Cross Tabulation with *Chi Square Test* for *Plays/Performances Arts Activities, Growth,* and *Teacher Experience* in *Arts/Non-Arts Schools*

Case Processing Summary

Plays Arts Activities	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Growth/Plays/Perform AA/ Teachers Two Years or More	4948	100.0%	0	.0%	4948	100.0%

Growth/Plays/Perform AA/Teachers Two Years or More Cross Tabulation

Teachers Two Years or More				Plays/Perform AA			Total
				0	Yes	No	
0	Growth	0	Count	1			1
			Expected Count	1.0			1.0
			% within Growth	100.0%			100.0%
	Total		Count	1			1
			Expected Count	1.0			1.0
			% within Growth	100.0%			100.0%
Yes	Growth	Yes	Count		684	471	1155
			Expected Count		697.8	457.2	1155.0
			% within Growth		59.2%	40.8%	100.0%
		No	Count		236	171	407
			Expected Count		245.9	161.1	407.0
			% within Growth		58.0%	42.0%	100.0%
		3	Count		95	23	118
			Expected Count		71.3	46.7	118.0
			% within Growth		80.5%	19.5%	100.0%
	Total		Count		1015	665	1680
			Expected Count		1015.0	665.0	1680.0
			% within Growth		60.4%	39.6%	100.0%
No	Growth	Yes	Count		1164	1312	2476
			Expected Count		1172.4	1303.6	2476.0
			% within Growth		47.0%	53.0%	100.0%
		No	Count		283	295	578
			Expected Count		273.7	304.3	578.0

			% within Growth		49.0%	51.0%	100.0%
		3	Count		100	113	213
			Expected Count		100.9	112.1	213.0
			% within Growth		46.9%	53.1%	100.0%
	Total		Count		1547	1720	3267
			Expected Count		1547.0	1720.0	3267.0
			% within Growth		47.4%	52.6%	100.0%
Total	Growth	0	Count	1	0	0	1
			Expected Count	.0	.5	.5	1.0
			% within Growth	100.0%	.0%	.0%	100.0%
		Yes	Count	0	1848	1783	3631
			Expected Count	.7	1880.1	1750.2	3631.0
			% within Growth	.0%	50.9%	49.1%	100.0%
		No	Count	0	519	466	985
			Expected Count	.2	510.0	474.8	985.0
			% within Growth	.0%	52.7%	47.3%	100.0%
		3	Count	0	195	136	331
			Expected Count	.1	171.4	159.5	331.0
			% within Growth	.0%	58.9%	41.1%	100.0%
	Total		Count	1	2562	2385	4948
			Expected Count	1.0	2562.0	2385.0	4948.0
			% within Growth	.0%	51.8%	48.2%	100.0%

Chi Square Tests

Teachers Two Years or More		Value	df	Asymp. Sig. (2-sided)
0	Pearson Chi-Square	.[a]		
	N of Valid Cases	1		
Yes	Pearson Chi-Square	21.615[b]	2	.000
	Likelihood Ratio	23.649	2	.000
	Linear-by-Linear Association	9.296	1	.002
	N of Valid Cases	1680		
No	Pearson Chi-Square	.730[c]	2	.694
	Likelihood Ratio	.730	2	.694
	Linear-by-Linear Association	.206	1	.650
	N of Valid Cases	3267		
Total	Pearson Chi-Square	4956.211[d]	6	.000
	Likelihood Ratio	27.269	6	.000
	Linear-by-Linear Association	6.630	1	.010
	N of Valid Cases	4948		

a. No statistics are computed because Growth and Plays/Performances AA are constants.

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 46.71.

c. 0 cells (.0%) have expected count less than 5. The minimum expected count is 100.86.

d. 6 cells (50.0%) have expected count less than 5. The minimum expected count is .00.

C 14

Cross Tabulation with *Chi Square Test* for *Painting/Illustrating Arts Activities, Growth,* and *Teacher Experience* in *Arts/Non-Arts Schools*

Case Processing Summary

Draw/Paint/Illustrating Arts Activities	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Growth/Draw/Paint/Illustrate AA/Teachers Two Years or More	4948	100.0%	0	.0%	4948	100.0%

Growth/Draw/Paint/Illustrate AA/Teachers Two Years or More Cross Tabulation

Teachers Two Years or More				Draw/Paint/Illustrate AA			Total
				0	Yes	No	
0	Growth	0	Count	1			1
			Expected Count	1.0			1.0
			% within Growth	100.0%			100.0%
	Total		Count	1			1
			Expected Count	1.0			1.0
			% within Growth	100.0%			100.0%
Yes	Growth	Yes	Count		732	423	1155
			Expected Count		742.5	412.5	1155.0
			% within Growth		63.4%	36.6%	100.0%
		No	Count		251	156	407
			Expected Count		261.6	145.4	407.0
			% within Growth		61.7%	38.3%	100.0%
		3	Count		97	21	118
			Expected Count		75.9	42.1	118.0
			% within Growth		82.2%	17.8%	100.0%
	Total		Count		1080	600	1680
			Expected Count		1080.0	600.0	1680.0
			% within Growth		64.3%	35.7%	100.0%
No	Growth	Yes	Count		1898	578	2476
			Expected Count		1892.4	583.6	2476.0
			% within Growth		76.7%	23.3%	100.0%
		No	Count		447	131	578
			Expected Count		441.8	136.2	578.0
			% within Growth		77.3%	22.7%	100.0%
		3	Count		152	61	213
			Expected Count		162.8	50.2	213.0
			% within Growth		71.4%	28.6%	100.0%
	Total		Count		2497	770	3267
			Expected Count		2497.0	770.0	3267.0
			% within Growth		76.4%	23.6%	100.0%
Total	Growth	0	Count	1	0	0	1
			Expected Count	.0	.7	.3	1.0
			% within Growth	100.0%	.0%	.0%	100.0%
		Yes	Count	0	2630	1001	3631

		Expected Count	.7	2624.9	1005.3	3631.0
		% within Growth	.0%	72.4%	27.6%	100.0%
	No	Count	0	698	287	985
		Expected Count	.2	712.1	272.7	985.0
		% within Growth	.0%	70.9%	29.1%	100.0%
	3	Count	0	249	82	331
		Expected Count	.1	239.3	91.6	331.0
		% within Growth	.0%	75.2%	24.8%	100.0%
Total		Count	1	3577	1370	4948
		Expected Count	1.0	3577.0	1370.0	4948.0
		% within Growth	.0%	72.3%	27.7%	100.0%

Chi Square Tests

Teachers Two Years or More		Value	df	Asymp. Sig. (2-sided)
0	Pearson Chi-Square	.[a]		
	N of Valid Cases	1		
Yes	Pearson Chi-Square	18.128[b]	2	.000
	Likelihood Ratio	20.056	2	.000
	Linear-by-Linear Association	6.887	1	.009
	N of Valid Cases	1680		
No	Pearson Chi-Square	3.371[c]	2	.185
	Likelihood Ratio	3.239	2	.198
	Linear-by-Linear Association	1.326	1	.250
	N of Valid Cases	3267		
Total	Pearson Chi-Square	4950.464[d]	6	.000
	Likelihood Ratio	21.498	6	.001
	Linear-by-Linear Association	.033	1	.856
	N of Valid Cases	4948		

a. No statistics are computed because Growth and Draw/Paint/Illustrate AA are constants.

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 42.14.

c. 0 cells (.0%) have expected count less than 5. The minimum expected count is 50.20.

d. 6 cells (50.0%) have expected count less than 5. The minimum expected count is .00.

C 15

Cross Tabulation with *Chi Square Test* for *Creative Writing Arts Activities, Growth,* and *Teacher Experience* in *Arts/Non-Arts Schools*

Case Processing Summary

Creative Writing Arts Activities	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Growth/Creative Writing AA/ Teachers Two Years or More	4948	100.0%	0	.0%	4948	100.0%

Growth /Creative Writing AA/Teachers Two Years or More Cross Tabulation

Teachers Two Years or More				Creative Writing AA			Total
				0	Yes	No	
0	Growth	0	Count	1			1
			Expected Count	1.0			1.0
			% within Growth	100.0%			100.0%
	Total		Count	1			1
			Expected Count	1.0			1.0
			% within Growth	100.0%			100.0%
Yes	Growth	Yes	Count		686	469	1155
			Expected Count		690.9	464.1	1155.0
			% within Growth		59.4%	40.6%	100.0%
		No	Count		230	177	407
			Expected Count		243.5	163.5	407.0
			% within Growth		56.5%	43.5%	100.0%
		3	Count		89	29	118
			Expected Count		70.6	47.4	118.0
			% within Growth		75.4%	24.6%	100.0%
	Total		Count		1005	675	1680
			Expected Count		1005.0	675.0	1680.0
			% within Growth		59.8%	40.2%	100.0%
No	Growth	Yes	Count		1518	958	2476
			Expected Count		1508.9	967.1	2476.0
			% within Growth		61.3%	38.7%	100.0%
		No	Count		349	229	578
			Expected Count		352.2	225.8	578.0
			% within Growth		60.4%	39.6%	100.0%
		3	Count		124	89	213
			Expected Count		129.8	83.2	213.0
			% within Growth		58.2%	41.8%	100.0%
	Total		Count		1991	1276	3267
			Expected Count		1991.0	1276.0	3267.0
			% within Growth		60.9%	39.1%	100.0%
Total	Growth	0	Count	1	0	0	1
			Expected Count	.0	.6	.4	1.0
			% within Growth	100.0%	.0%	.0%	100.0%
		Yes	Count	0	2204	1427	3631

		Expected Count	.7	2198.6	1431.7	3631.0
		% within Growth	.0%	60.7%	39.3%	100.0%
	No	Count	0	579	406	985
		Expected Count	.2	596.4	388.4	985.0
		% within Growth	.0%	58.8%	41.2%	100.0%
	3	Count	0	213	118	331
		Expected Count	.1	200.4	130.5	331.0
		% within Growth	.0%	64.4%	35.6%	100.0%
Total		Count	1	2996	1951	4948
		Expected Count	1.0	2996.0	1951.0	4948.0
		% within Growth	.0%	60.5%	39.4%	100.0%

Chi Square Tests

Teachers Two Years or More		Value	df	Asymp. Sig. (2-sided)
0	Pearson Chi-Square	.[a]		
	N of Valid Cases	1		
Yes	Pearson Chi-Square	13.895[b]	2	.001
	Likelihood Ratio	14.671	2	.001
	Linear-by-Linear Association	3.581	1	.058
	N of Valid Cases	1680		
No	Pearson Chi-Square	.881[c]	2	.644
	Likelihood Ratio	.876	2	.645
	Linear-by-Linear Association	.828	1	.363
	N of Valid Cases	3267		
Total	Pearson Chi-Square	4951.325[d]	6	.000
	Likelihood Ratio	22.356	6	.001
	Linear-by-Linear Association	.077	1	.782
	N of Valid Cases	4948		

a. No statistics are computed because Growth and Creative Writing AA are constants.

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 47.41.

c. 0 cells (.0%) have expected count less than 5. The minimum expected count is 83.19.

d. 6 cells (50.0%) have expected count less than 5. The minimum expected count is .00.

C 16

Cross Tabulation with *Chi Square Test* for *Technology Arts Activities, Growth,* and *Teacher Experience* in *Arts/Non-Arts Schools*

Case Processing Summary

Technology Activities	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Growth/Technology AA/ Teachers Two Years or More	4948	100.0%	0	.0%	4948	100.0%

Growth/Technology AA/Teachers Two Years or More Cross Tabulation

Teachers Two Years or More				Technology AA 0	Technology AA Yes	Technology AA No	Total
0	Growth	0	Count	1			1
			Expected Count	1.0			1.0
			% within Growth	100.0%			100.0%
	Total		Count	1			1
			Expected Count	1.0			1.0
			% within Growth	100.0%			100.0%
Yes	Growth	Yes	Count		850	305	1155
			Expected Count		838.8	316.3	1155.0
			% within Growth		73.6%	26.4%	100.0%
		No	Count		282	125	407
			Expected Count		295.6	111.4	407.0
			% within Growth		69.3%	30.7%	100.0%
		3	Count		88	30	118
			Expected Count		85.7	32.3	118.0
			% within Growth		74.6%	25.4%	100.0%
	Total		Count		1220	460	1680
			Expected Count		1220.0	460.0	1680.0
			% within Growth		72.6%	27.4%	100.0%
No	Growth	Yes	Count		2206	270	2476
			Expected Count		2210.0	266.0	2476.0
			% within Growth		89.1%	10.9%	100.0%
		No	Count		523	55	578
			Expected Count		515.9	62.1	578.0
			% within Growth		90.5%	9.5%	100.0%
		3	Count		187	26	213
			Expected Count		190.1	22.9	213.0
			% within Growth		87.8%	12.2%	100.0%
	Total		Count		2916	351	3267
			Expected Count		2916.0	351.0	3267.0
			% within Growth		89.3%	10.7%	100.0%
Total	Growth	0	Count	1	0	0	1
			Expected Count	.0	.8	.2	1.0
			% within Growth	100.0%	.0%	.0%	100.0%
		Yes	Count	0	3056	575	3631

		Expected Count	.7	3035.1	595.1	3631.0
		% within Growth	.0%	84.2%	15.8%	100.0%
	No	Count	0	805	180	985
		Expected Count	.2	823.4	161.4	985.0
		% within Growth	.0%	81.7%	18.3%	100.0%
	3	Count	0	275	56	331
		Expected Count	.1	276.7	54.3	331.0
		% within Growth	.0%	83.1%	16.9%	100.0%
Total		Count	1	4136	811	4948
		Expected Count	1.0	4136.0	811.0	4948.0
		% within Growth	.0%	83.6%	16.4%	100.0%

Chi-Square Tests

Teachers Two Years or More		Value	df	Asymp. Sig. (2-sided)
0	Pearson Chi-Square	.[a]		
	N of Valid Cases	1		
Yes	Pearson Chi-Square	3.050[b]	2	.218
	Likelihood Ratio	3.005	2	.223
	Linear-by-Linear Association	.635	1	.426
	N of Valid Cases	1680		
No	Pearson Chi-Square	1.451[c]	2	.484
	Likelihood Ratio	1.466	2	.481
	Linear-by-Linear Association	.007	1	.933
	N of Valid Cases	3267		
Total	Pearson Chi-Square	4951.433[d]	6	.000
	Likelihood Ratio	22.379	6	.001
	Linear-by-Linear Association	2.290	1	.130
	N of Valid Cases	4948		

C 17

Cross Tabulation with *Chi Square Test* for *Music Frequency, Growth,* and *Teacher Experience* in *Arts/Non-Arts Schools*

Case Processing Summary

Music Frequency	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Growth/Listening to Music Frequency/Teachers Two Years or More	4948	100.0%	0	.0%	4948	100.0%

Growth/Listening to Music Frequency/Teachers Two Years or More Cross Tabulation

Teachers Two Years or More				Listening to Music Frequency					Total
				0	Never	Daily	Weekly	Monthly	
0	Growth	0	Count	1					1
			Expected Count	1.0					1.0
			% within Growth	100.0%					100.0%
	Total		Count	1					1
			Expected Count	1.0					1.0
			% within Growth	100.0%					100.0%
Yes	Growth	Yes	Count		366	149	384	256	1155
			Expected Count		366.4	153.3	382.9	252.3	1155.0
			% within Growth		31.7%	12.9%	33.2%	22.2%	100.0%
		No	Count		138	45	134	90	407
			Expected Count		129.1	54.0	134.9	88.9	407.0
			% within Growth		33.9%	11.1%	32.9%	22.1%	100.0%
		3	Count		29	29	39	21	118
			Expected Count		37.4	15.7	39.1	25.8	118.0
			% within Growth		24.6%	24.6%	33.1%	17.8%	100.0%
	Total		Count		533	223	557	367	1680
			Expected Count		533.0	223.0	557.0	367.0	1680.0
			% within Growth		31.7%	13.3%	33.2%	21.8%	100.0%
No	Growth	Yes	Count		325	361	865	925	2476
			Expected Count		317.6	353.9	868.5	936.0	2476.0
			% within Growth		13.1%	14.6%	34.9%	37.4%	100.0%

		No	Count		59	82	207	230	578
			Expected Count		74.1	82.6	202.8	218.5	578.0
			% within Growth		10.2%	14.2%	35.8%	39.8%	100.0%
		3	Count		35	24	74	80	213
			Expected Count		27.3	30.4	74.7	80.5	213.0
			% within Growth		16.4%	11.3%	34.7%	37.6%	100.0%
	Total		Count		419	467	1146	1235	3267
			Expected Count		419.0	467.0	1146.0	1235.0	3267.0
			% within Growth		12.8%	14.3%	35.1%	37.8%	100.0%
Total	Growth	0	Count	1	0	0	0	0	1
			Expected Count	.0	.2	.1	.3	.3	1.0
			% within Growth	100.0%	.0%	.0%	.0%	.0%	100.0%
		Yes	Count	0	691	510	1249	1181	3631
			Expected Count	.7	698.6	506.3	1249.7	1175.6	3631.0
			% within Growth	.0%	19.0%	14.0%	34.4%	32.5%	100.0%
		No	Count	0	197	127	341	320	985
			Expected Count	.2	189.5	137.4	339.0	318.9	985.0
			% within Growth	.0%	20.0%	12.9%	34.6%	32.5%	100.0%
		3	Count	0	64	53	113	101	331
			Expected Count	.1	63.7	46.2	113.9	107.2	331.0
			% within Growth	.0%	19.3%	16.0%	34.1%	30.5%	100.0%
	Total		Count	1	952	690	1703	1602	4948
			Expected Count	1.0	952.0	690.0	1703.0	1602.0	4948.0
			% within Growth	.0%	19.2%	13.9%	34.4%	32.4%	100.0%

Chi Square Tests

Teachers Two Years or More		Value	df	Asymp. Sig. (2-sided)
0	Pearson Chi-Square	.[a]		
	N of Valid Cases	1		
Yes	Pearson Chi-Square	16.459[b]	6	.011
	Likelihood Ratio	14.458	6	.025
	Linear-by-Linear Association	.122	1	.726
	N of Valid Cases	1680		
No	Pearson Chi-Square	7.782[c]	6	.254
	Likelihood Ratio	7.934	6	.243
	Linear-by-Linear Association	.477	1	.490
	N of Valid Cases	3267		
Total	Pearson Chi-Square	4950.604[d]	12	.000
	Likelihood Ratio	21.595	12	.042
	Linear-by-Linear Association	.346	1	.556
	N of Valid Cases	4948		

a. No statistics are computed because Growth and Listening to Music Frequency are constants.

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 15.66.

c. 0 cells (.0%) have expected count less than 5. The minimum expected count is 27.32.

d. 8 cells (40.0%) have expected count less than 5. The minimum expected count is .00.

C 18

Cross Tabulation with *Chi Square Test* for *Composing Frequency, Growth,* and *Teacher Experience* in *Arts/Non-Arts Schools*

Case Processing Summary

Composing Music Frequency	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Growth/Composing Music Frequency/Teachers Two Years or More	4948	100.0%	0	.0%	4948	100.0%

Growth/Composing Music Frequency/Teachers Two Years or More Cross Tabulation

Teachers Two Years or More				Composing Music Frequency				
				0	Never	Weekly	Monthly	Total
0	Growth	0	Count	1				1
			Expected Count	1.0				1.0
			% within Growth	100.0%				100.0%
	Total		Count	1				1
			Expected Count	1.0				1.0
			% within Growth	100.0%				100.0%
Yes	Growth	Yes	Count		905	46	204	1155
			Expected Count		904.1	51.6	199.4	1155.0
			% within Growth		78.4%	4.0%	17.7%	100.0%
		No	Count		318	21	68	407
			Expected Count		318.6	18.2	70.3	407.0
			% within Growth		78.1%	5.2%	16.7%	100.0%
		3	Count		92	8	18	118
			Expected Count		92.4	5.3	20.4	118.0
			% within Growth		78.0%	6.8%	15.3%	100.0%
	Total		Count		1315	75	290	1680
			Expected Count		1315.0	75.0	290.0	1680.0
			% within Growth		78.3%	4.5%	17.3%	100.0%
No	Growth	Yes	Count		2424		52	2476
			Expected Count		2421.4		54.6	2476.0
			% within Growth		97.9%		2.1%	100.0%
		No	Count		565		13	578
			Expected Count		565.3		12.7	578.0
			% within Growth		97.8%		2.2%	100.0%
		3	Count		206		7	213
			Expected Count		208.3		4.7	213.0
			% within Growth		96.7%		3.3%	100.0%
	Total		Count		3195		72	3267
			Expected Count		3195.0		72.0	3267.0
			% within Growth		97.8%		2.2%	100.0%
Total	Growth	0	Count	1	0	0	0	1
			Expected Count	.0	.9	.0	.1	1.0
			% within Growth	100.0%	.0%	.0%	.0%	100.0%
		Yes	Count	0	3329	46	256	3631

		Expected Count	.7	3309.6	55.0	265.6	3631.0
		% within Growth	.0%	91.7%	1.3%	7.1%	100.0%
	No	Count	0	883	21	81	985
		Expected Count	.2	897.8	14.9	72.1	985.0
		% within Growth	.0%	89.6%	2.1%	8.2%	100.0%
	3	Count	0	298	8	25	331
		Expected Count	.1	301.7	5.0	24.2	331.0
		% within Growth	.0%	90.0%	2.4%	7.6%	100.0%
Total		Count	1	4510	75	362	4948
		Expected Count	1.0	4510.0	75.0	362.0	4948.0
		% within Growth	.0%	91.1%	1.5%	7.3%	100.0%

Chi Square Tests

Teachers Two Years or More		Value	df	Asymp. Sig. (2-sided)
0	Pearson Chi-Square	.[a]		
	N of Valid Cases	1		
Yes	Pearson Chi-Square	2.917[b]	4	.572
	Likelihood Ratio	2.733	4	.603
	Linear-by-Linear Association	.022	1	.881
	N of Valid Cases	1680		
No	Pearson Chi-Square	1.287[c]	2	.525
	Likelihood Ratio	1.139	2	.566
	Linear-by-Linear Association	.982	1	.322
	N of Valid Cases	3267		
Total	Pearson Chi-Square	4955.612[d]	9	.000
	Likelihood Ratio	26.123	9	.002
	Linear-by-Linear Association	2.822	1	.093
	N of Valid Cases	4948		

a. No statistics are computed because Growth and Composing Music Frequency are constants.

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 5.27.

c. 1 cells (16.7%) have expected count less than 5. The minimum expected count is 4.69.

d. 7 cells (43.8%) have expected count less than 5. The minimum expected count is .00.

C 19

Cross Tabulation with *Chi Square Test* for *Dance Frequency, Growth,* and *Teacher Experience* in *Arts/Non-Arts Schools*

Case Processing Summary

Dance/Movement Frequency	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Growth/Dance/Movement Frequency/Teachers Two Years or More	4948	100.0%	0	.0%	4948	100.0%

Growth/Dance/Movement Frequency/Teachers Two Years or More Cross Tabulation

Teachers Two Years or More				Dance/Movement Frequency					Total
				0	Never	Daily	Weekly	Monthly	
0	Growth	0	Count	1					1
			Expected Count	1.0					1.0
			% within Growth	100.0%					100.0%
	Total		Count	1					1
			Expected Count	1.0					1.0
			% within Growth	100.0%					100.0%
Yes	Growth	Yes	Count		675		157	323	1155
			Expected Count		677.2		171.9	305.9	1155.0
			% within Growth		58.4%		13.6%	28.0%	100.0%
		No	Count		254		57	96	407
			Expected Count		238.6		60.6	107.8	407.0
			% within Growth		62.4%		14.0%	23.6%	100.0%
		3	Count		56		36	26	118
			Expected Count		69.2		17.6	31.3	118.0
			% within Growth		47.5%		30.5%	22.0%	100.0%
	Total		Count		985		250	445	1680
			Expected Count		985.0		250.0	445.0	1680.0
			% within Growth		58.6%		14.9%	26.5%	100.0%
No	Growth	Yes	Count		1300	178	550	448	2476
			Expected Count		1307.3	178.9	546.4	443.4	2476.0
			% within Growth		52.5%	7.2%	22.2%	18.1%	100.0%
		No	Count		317	37	125	99	578
			Expected Count		305.2	41.8	127.6	103.5	578.0
			% within Growth		54.8%	6.4%	21.6%	17.1%	100.0%
		3	Count		108	21	46	38	213
			Expected Count		112.5	15.4	47.0	38.1	213.0
			% within Growth		50.7%	9.9%	21.6%	17.8%	100.0%
	Total		Count		1725	236	721	585	3267
			Expected Count		1725.0	236.0	721.0	585.0	3267.0
			% within Growth		52.8%	7.2%	22.1%	17.9%	100.0%
Total	Growth	0	Count	1	0	0	0	0	1
			Expected Count	.0	.5	.0	.2	.2	1.0
			% within Growth	100.0%	.0%	.0%	.0%	.0%	100.0%
		Yes	Count	0	1975	178	707	771	3631

		Expected Count	.7	1988.7	173.2	712.6	755.8	3631.0
		% within Growth	.0%	54.4%	4.9%	19.5%	21.2%	100.0%
	No	Count	0	571	37	182	195	985
		Expected Count	.2	539.5	47.0	193.3	205.0	985.0
		% within Growth	.0%	58.0%	3.8%	18.5%	19.8%	100.0%
	3	Count	0	164	21	82	64	331
		Expected Count	.1	181.3	15.8	65.0	68.9	331.0
		% within Growth	.0%	49.5%	6.3%	24.8%	19.3%	100.0%
Total		Count	1	2710	236	971	1030	4948
		Expected Count	1.0	2710.0	236.0	971.0	1030.0	4948.0
		% within Growth	.0%	54.8%	4.8%	19.6%	20.8%	100.0%

Chi Square Tests

Teachers Two Years or More		Value	df	Asymp. Sig. (2-sided)
0	Pearson Chi-Square	.[a]		
	N of Valid Cases	1		
Yes	Pearson Chi-Square	27.501[b]	4	.000
	Likelihood Ratio	23.231	4	.000
	Linear-by-Linear Association	.000	1	.992
	N of Valid Cases	1680		
No	Pearson Chi-Square	3.610[c]	6	.729
	Likelihood Ratio	3.420	6	.755
	Linear-by-Linear Association	.176	1	.674
	N of Valid Cases	3267		
Total	Pearson Chi-Square	4961.880[d]	12	.000
	Likelihood Ratio	32.599	12	.001
	Linear-by-Linear Association	.045	1	.833
	N of Valid Cases	4948		

a. No statistics are computed because Growth and Dance/Movement Frequency are constants.

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 17.56.

c. 0 cells (.0%) have expected count less than 5. The minimum expected count is 15.39.

d. 8 cells (40.0%) have expected count less than 5. The minimum expected count is .00.

C 20

Cross Tabulation with *Chi Square Test* for *Plays Frequency, Growth,* and *Teacher Experience* in *Arts/Non-Arts Schools*

Case Processing Summary

Plays Performance Frequency	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Growth/Plays/Performance Frequency/Teachers Two Years or More	4948	100.0%	0	.0%	4948	100.0%

Growth/Plays/Performance Frequency/Teachers Two Years or More Cross Tabulation

Teachers Two Years or More				Plays/Performance Frequency					Total
				0	Never	Daily	Weekly	Monthly	
0	Growth	0	Count	1					1
			Expected Count	1.0					1.0
			% within Growth	100.0%					100.0%
	Total		Count	1					1
			Expected Count	1.0					1.0
			% within Growth	100.0%					100.0%
Yes	Growth	Yes	Count		585		46	524	1155
			Expected Count		575.4		51.6	528.0	1155.0
			% within Growth		50.6%		4.0%	45.4%	100.0%
		No	Count		219		21	167	407
			Expected Count		202.8		18.2	186.1	407.0
			% within Growth		53.8%		5.2%	41.0%	100.0%
		3	Count		33		8	77	118
			Expected Count		58.8		5.3	53.9	118.0
			% within Growth		28.0%		6.8%	65.3%	100.0%
	Total		Count		837		75	768	1680
			Expected Count		837.0		75.0	768.0	1680.0
			% within Growth		49.8%		4.5%	45.7%	100.0%
No	Growth	Yes	Count		1312	60	121	983	2476
			Expected Count		1307.3	67.5	135.7	965.5	2476.0
			% within Growth		53.0%	2.4%	4.9%	39.7%	100.0%

		No	Count		305	19	48	206	578
			Expected Count		305.2	15.7	31.7	225.4	578.0
			% within Growth		52.8%	3.3%	8.3%	35.6%	100.0%
		3	Count		108	10	10	85	213
			Expected Count		112.5	5.8	11.7	83.1	213.0
			% within Growth		50.7%	4.7%	4.7%	39.9%	100.0%
	Total		Count		1725	89	179	1274	3267
			Expected Count		1725.0	89.0	179.0	1274.0	3267.0
			% within Growth		52.8%	2.7%	5.5%	39.0%	100.0%
Total	Growth	0	Count	1	0	0	0	0	1
			Expected Count	.0	.5	.0	.1	.4	1.0
			% within Growth	100.0%	.0%	.0%	.0%	.0%	100.0%
		Yes	Count	0	1897	60	167	1507	3631
			Expected Count	.7	1880.1	65.3	186.4	1498.5	3631.0
			% within Growth	.0%	52.2%	1.7%	4.6%	41.5%	100.0%
		No	Count	0	524	19	69	373	985
			Expected Count	.2	510.0	17.7	50.6	406.5	985.0
			% within Growth	.0%	53.2%	1.9%	7.0%	37.9%	100.0%
		3	Count	0	141	10	18	162	331
			Expected Count	.1	171.4	6.0	17.0	136.6	331.0
			% within Growth	.0%	42.6%	3.0%	5.4%	48.9%	100.0%
	Total		Count	1	2562	89	254	2042	4948
			Expected Count	1.0	2562.0	89.0	254.0	2042.0	4948.0
			% within Growth	.0%	51.8%	1.8%	5.1%	41.3%	100.0%

Chi-Square Tests

Teachers Two Years or More		Value	df	Asymp. Sig. (2-sided)
0	Pearson Chi-Square	.[a]		
	N of Valid Cases	1		
Yes	Pearson Chi-Square	27.066[b]	4	.000
	Likelihood Ratio	27.897	4	.000
	Linear-by-Linear Association	6.990	1	.008
	N of Valid Cases	1680		
No	Pearson Chi-Square	17.001[c]	6	.009
	Likelihood Ratio	15.408	6	.017
	Linear-by-Linear Association	.035	1	.852
	N of Valid Cases	3267		
Total	Pearson Chi-Square	4973.529[d]	12	.000
	Likelihood Ratio	43.617	12	.000
	Linear-by-Linear Association	2.982	1	.084
	N of Valid Cases	4948		

a. No statistics are computed because Growth and Plays/Performance Frequency are constants.

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 5.27.

c. 0 cells (.0%) have expected count less than 5. The minimum expected count is 5.80.

d. 8 cells (40.0%) have expected count less than 5. The minimum expected count is .00.

C 21

Cross Tabulation with *Chi Square Test* for *Drawing Frequency, Growth,* and *Teacher Experience* in *Arts/Non-Arts Schools*

Case Processing Summary

Drawing Frequency	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Growth/Draw/Paint/Illustrate Frequency/Teachers Two Years or More	4948	100.0%	0	.0%	4948	100.0%

Growth/Draw/Paint/Illustrate Frequency/Teachers Two Years or More Cross Tabulation

Teachers Two Years or More				Draw/Paint/Illustrate Frequency					Total
				0	Never	Daily	Weekly	Monthly	
0	Growth	0	Count	1					1
			Expected Count	1.0					1.0
			% within Growth	100.0%					100.0%
	Total		Count	1					1
			Expected Count	1.0					1.0
			% within Growth	100.0%					100.0%
Yes	Growth	Yes	Count		309	118	531	197	1155
			Expected Count		294.3	114.1	542.4	204.2	1155.0
			% within Growth		26.8%	10.2%	46.0%	17.1%	100.0%
		No	Count		108	36	180	83	407
			Expected Count		103.7	40.2	191.1	72.0	407.0
			% within Growth		26.5%	8.8%	44.2%	20.4%	100.0%
		3	Count		11	12	78	17	118
			Expected Count		30.1	11.7	55.4	20.9	118.0
			% within Growth		9.3%	10.2%	66.1%	14.4%	100.0%
	Total		Count		428	166	789	297	1680
			Expected Count		428.0	166.0	789.0	297.0	1680.0
			% within Growth		25.5%	9.9%	47.0%	17.7%	100.0%
No	Growth	Yes	Count		212	200	771	1293	2476
			Expected Count		209.9	183.4	761.7	1321.0	2476.0
			% within Growth		8.6%	8.1%	31.1%	52.2%	100.0%
		No	Count		35	27	168	348	578
			Expected Count		49.0	42.8	177.8	308.4	578.0
			% within Growth		6.1%	4.7%	29.1%	60.2%	100.0%
		3	Count		30	15	66	102	213
			Expected Count		18.1	15.8	65.5	113.6	213.0
			% within Growth		14.1%	7.0%	31.0%	47.9%	100.0%
	Total		Count		277	242	1005	1743	3267
			Expected Count		277.0	242.0	1005.0	1743.0	3267.0
			% within Growth		8.5%	7.4%	30.8%	53.4%	100.0%
Total	Growth	0	Count	1	0	0	0	0	1
			Expected Count	.0	.1	.1	.4	.4	1.0
			% within Growth	100.0%	.0%	.0%	.0%	.0%	100.0%
		Yes	Count	0	521	318	1302	1490	3631

		Expected Count	.7	517.4	299.4	1316.5	1497.0	3631.0
		% within Growth	.0%	14.3%	8.8%	35.9%	41.0%	100.0%
	No	Count	0	143	63	348	431	985
		Expected Count	.2	140.3	81.2	357.1	406.1	985.0
		% within Growth	.0%	14.5%	6.4%	35.3%	43.8%	100.0%
	3	Count	0	41	27	144	119	331
		Expected Count	.1	47.2	27.3	120.0	136.5	331.0
		% within Growth	.0%	12.4%	8.2%	43.5%	36.0%	100.0%
Total		Count	1	705	408	1794	2040	4948
		Expected Count	1.0	705.0	408.0	1794.0	2040.0	4948.0
		% within Growth	.0%	14.2%	8.2%	36.3%	41.2%	100.0%

Chi-Square Tests

Teachers Two Years or More		Value	df	Asymp. Sig. (2-sided)
0	Pearson Chi-Square	.[a]		
	N of Valid Cases	1		
Yes	Pearson Chi-Square	26.346[b]	6	.000
	Likelihood Ratio	29.206	6	.000
	Linear-by-Linear Association	7.904	1	.005
	N of Valid Cases	1680		
No	Pearson Chi-Square	26.835[c]	6	.000
	Likelihood Ratio	26.659	6	.000
	Linear-by-Linear Association	.202	1	.653
	N of Valid Cases	3267		
Total	Pearson Chi-Square	4963.110[d]	12	.000
	Likelihood Ratio	34.266	12	.001
	Linear-by-Linear Association	.551	1	.458
	N of Valid Cases	4948		

a. No statistics are computed because Growth and Draw/Paint/Illustrate Frequency are constants.

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 11.66.

c. 0 cells (.0%) have expected count less than 5. The minimum expected count is 15.78.

d. 8 cells (40.0%) have expected count less than 5. The minimum expected count is .00.

C 22

Cross Tabulation with *Chi Square Test* for *Creative Writing Frequency, Growth,* and *Teacher Experience* in *Arts/Non-Arts Schools*

Case Processing Summary

Creative Writing Frequency	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Growth/Creative Writing Frequency/ Teachers Two Years or More	4948	100.0%	0	.0%	4948	100.0%

Growth/Creative Writing Frequency/Teachers Two Years or More Cross Tabulation

Teachers Two Years or More				Creative Writing Frequency					Total
				0	Never	Daily	Weekly	Monthly	
0	Growth	0	Count	1					1
			Expected Count	1.0					1.0
			% within Growth	100.0%					100.0%
	Total		Count	1					1
			Expected Count	1.0					1.0
			% within Growth	100.0%					100.0%
Yes	Growth	Yes	Count		355	75	594	131	1155
			Expected Count		345.8	79.1	591.9	138.2	1155.0
			% within Growth		30.7%	6.5%	51.4%	11.3%	100.0%
		No	Count		129	28	193	57	407
			Expected Count		121.9	27.9	208.6	48.7	407.0
			% within Growth		31.7%	6.9%	47.4%	14.0%	100.0%
		3	Count		19	12	74	13	118
			Expected Count		35.3	8.1	60.5	14.1	118.0
			% within Growth		16.1%	10.2%	62.7%	11.0%	100.0%
	Total		Count		503	115	861	201	1680
			Expected Count		503.0	115.0	861.0	201.0	1680.0
			% within Growth		29.9%	6.8%	51.3%	12.0%	100.0%
No	Growth	Yes	Count		894	136	407	1039	2476
			Expected Count		905.7	134.1	404.7	1031.5	2476.0
			% within Growth		36.1%	5.5%	16.4%	42.0%	100.0%
		No	Count		213	24	94	247	578
			Expected Count		211.4	31.3	94.5	240.8	578.0
			% within Growth		36.9%	4.2%	16.3%	42.7%	100.0%
		3	Count		88	17	33	75	213
			Expected Count		77.9	11.5	34.8	88.7	213.0
			% within Growth		41.3%	8.0%	15.5%	35.2%	100.0%
	Total		Count		1195	177	534	1361	3267
			Expected Count		1195.0	177.0	534.0	1361.0	3267.0
			% within Growth		36.6%	5.4%	16.3%	41.7%	100.0%
Total	Growth	0	Count	1	0	0	0	0	1
			Expected Count	.0	.3	.1	.3	.3	1.0
			% within Growth	100.0%	.0%	.0%	.0%	.0%	100.0%
		Yes	Count	0	1249	211	1001	1170	3631

		Expected Count	.7	1246.0	214.3	1023.7	1146.2	3631.0
		% within Growth	.0%	34.4%	5.8%	27.6%	32.2%	100.0%
	No	Count	0	342	52	287	304	985
		Expected Count	.2	338.0	58.1	277.7	310.9	985.0
		% within Growth	.0%	34.7%	5.3%	29.1%	30.9%	100.0%
	3	Count	0	107	29	107	88	331
		Expected Count	.1	113.6	19.5	93.3	104.5	331.0
		% within Growth	.0%	32.3%	8.8%	32.3%	26.6%	100.0%
Total		Count	1	1698	292	1395	1562	4948
		Expected Count	1.0	1698.0	292.0	1395.0	1562.0	4948.0
		% within Growth	.0%	34.3%	5.9%	28.2%	31.6%	100.0%

Chi Square Tests

Teachers Two Years or More		Value	df	Asymp. Sig. (2-sided)
0	Pearson Chi-Square	.[a]		
	N of Valid Cases	1		
Yes	Pearson Chi-Square	16.401[b]	6	.012
	Likelihood Ratio	17.447	6	.008
	Linear-by-Linear Association	3.509	1	.061
	N of Valid Cases	1680		
No	Pearson Chi-Square	8.237[c]	6	.221
	Likelihood Ratio	8.123	6	.229
	Linear-by-Linear Association	2.319	1	.128
	N of Valid Cases	3267		
Total	Pearson Chi-Square	4959.790[d]	12	.000
	Likelihood Ratio	30.289	12	.003
	Linear-by-Linear Association	.343	1	.558
	N of Valid Cases	4948		

a. No statistics are computed because Growth and Creative Writing Frequency are constants.

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 8.08.

c. 0 cells (.0%) have expected count less than 5. The minimum expected count is 11.54.

d. 8 cells (40.0%) have expected count less than 5. The minimum expected count is .00.

C 23

Cross Tabulation with *Chi Square Test* for *Technology Frequency, Growth,* and *Teacher Experience* in *Arts/Non-Arts Schools*

Case Processing Summary

Technology Frequency	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Growth/Technology Frequency/Teachers Two Years or More	4948	100.0%	0	.0%	4948	100.0%

Growth/Technology Frequency/Teachers Two Years or More Cross Tabulation

Teachers Two Years or More				Technology Frequency					Total
				0	Never	Daily	Weekly	Monthly	
0	Growth	0	Count	1					1
			Expected Count	1.0					1.0
			% within Growth	100.0%					100.0%
	Total		Count	1					1
			Expected Count	1.0					1.0
			% within Growth	100.0%					100.0%
Yes	Growth	Yes	Count		191	167	540	257	1155
			Expected Count		198.0	185.6	519.8	251.6	1155.0
			% within Growth		16.5%	14.5%	46.8%	22.3%	100.0%
		No	Count		77	70	164	96	407
			Expected Count		69.8	65.4	183.2	88.7	407.0
			% within Growth		18.9%	17.2%	40.3%	23.6%	100.0%
		3	Count		20	33	52	13	118
			Expected Count		20.2	19.0	53.1	25.7	118.0
			% within Growth		16.9%	28.0%	44.1%	11.0%	100.0%
	Total		Count		288	270	756	366	1680
			Expected Count		288.0	270.0	756.0	366.0	1680.0
			% within Growth		17.1%	16.1%	45.0%	21.8%	100.0%
No	Growth	Yes	Count		190	738	967	581	2476
			Expected Count		187.2	717.0	991.3	580.5	2476.0
			% within Growth		7.7%	29.8%	39.1%	23.5%	100.0%
		No	Count		36	133	275	134	578
			Expected Count		43.7	167.4	231.4	135.5	578.0
			% within Growth		6.2%	23.0%	47.6%	23.2%	100.0%
		3	Count		21	75	66	51	213
			Expected Count		16.1	61.7	85.3	49.9	213.0
			% within Growth		9.9%	35.2%	31.0%	23.9%	100.0%
	Total		Count		247	946	1308	766	3267
			Expected Count		247.0	946.0	1308.0	766.0	3267.0
			% within Growth		7.6%	29.0%	40.0%	23.4%	100.0%
Total	Growth	0	Count	1	0	0	0	0	1
			Expected Count	.0	.1	.2	.4	.2	1.0
			% within Growth	100.0%	.0%	.0%	.0%	.0%	100.0%
		Yes	Count	0	381	905	1507	838	3631

		Expected Count	.7	392.6	892.3	1514.6	830.7	3631.0
		% within Growth	.0%	10.5%	24.9%	41.5%	23.1%	100.0%
	No	Count	0	113	203	439	230	985
		Expected Count	.2	106.5	242.1	410.9	225.3	985.0
		% within Growth	.0%	11.5%	20.6%	44.6%	23.4%	100.0%
	3	Count	0	41	108	118	64	331
		Expected Count	.1	35.8	81.3	138.1	75.7	331.0
		% within Growth	.0%	12.4%	32.6%	35.6%	19.3%	100.0%
Total		Count	1	535	1216	2064	1132	4948
		Expected Count	1.0	535.0	1216.0	2064.0	1132.0	4948.0
		% within Growth	.0%	10.8%	24.6%	41.7%	22.9%	100.0%

Chi-Square Tests

Teachers Two Years or More		Value	df	Asymp. Sig. (2-sided)
0	Pearson Chi-Square	.[a]		
	N of Valid Cases	1		
Yes	Pearson Chi-Square	23.394[b]	6	.001
	Likelihood Ratio	22.985	6	.001
	Linear-by-Linear Association	6.641	1	.010
	N of Valid Cases	1680		
No	Pearson Chi-Square	26.644[c]	6	.000
	Likelihood Ratio	26.851	6	.000
	Linear-by-Linear Association	.019	1	.889
	N of Valid Cases	3267		
Total	Pearson Chi-Square	4971.574[d]	12	.000
	Likelihood Ratio	42.305	12	.000
	Linear-by-Linear Association	2.645	1	.104
	N of Valid Cases	4948		

a. No statistics are computed because Growth and Technology Frequency are constants.

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 18.96.

c. 0 cells (.0%) have expected count less than 5. The minimum expected count is 16.10.

d. 8 cells (40.0%) have expected count less than 5. The minimum expected count is .00.

C 24

Cross Tabulation with *Chi Square Test* for *Asian Compose Arts Activity*

Case Processing Summary

Asian Arts Activities (AA) Arts/Non-Arts	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Growth/Composing AA	293	100.0%	0	.0%	293	100.0%

Growth/Composing AA Cross Tabulation

			Composing AA		
			Yes	No	Total
Growth	Yes	Count	14	197	211
		Expected Count	20.2	190.8	211.0
	No	Count	12	41	53
		Expected Count	5.1	47.9	53.0
	3	Count	2	27	29
		Expected Count	2.8	26.2	29.0
Total		Count	28	265	293
		Expected Count	28.0	265.0	293.0

Chi Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	12.820[a]	2	.002
Likelihood Ratio	10.457	2	.005
Linear-by-Linear Association	2.641	1	.104
N of Valid Cases	293		

a. 1 cells (16.7%) have expected count less than 5. The minimum expected count is 2.77.

C 25

Cross Tabulation with *Chi Square Test* for *Boys Compose Arts Activity*

Case Processing Summary

Boys AA Arts/Non-Arts	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Growth/Composing AA	2472	100.0%	0	.0%	2472	100.0%

Growth/Composing AA Cross Tabulation

Boys and Compose			Composing AA		Total
			Yes	No	
Growth	Yes	Count	255	1577	1832
		Expected Count	273.5	1558.5	1832.0
	No	Count	92	373	465
		Expected Count	69.4	395.6	465.0
	3	Count	22	153	175
		Expected Count	26.1	148.9	175.0
Total		Count	369	2103	2472
		Expected Count	369.0	2103.0	2472.0

Chi Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.871[a]	2	.004
Likelihood Ratio	10.272	2	.006
Linear-by-Linear Association	1.807	1	.179
N of Valid Cases	2472		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 26.12.

C 26

Cross Tabulation with *Chi Square Test* for *FR Compose Arts Activity*

Case Processing Summary

Free & Reduced Lunch AA Arts/Non-Arts	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Growth/Composing AA	1603	100.0%	0	.0%	1603	100.0%

Growth/Composing AA Cross Tabulation

			Composing AA		
			Yes	No	Total
Growth	Yes	Count	114	989	1103
		Expected Count	139.0	964.0	1103.0
	No	Count	62	277	339
		Expected Count	42.7	296.3	339.0
	3	Count	26	135	161
		Expected Count	20.3	140.7	161.0
Total		Count	202	1401	1603
		Expected Count	202.0	1401.0	1603.0

Chi Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	16.940[a]	2	.000
Likelihood Ratio	16.054	2	.000
Linear-by-Linear Association	12.042	1	.001
N of Valid Cases	1603		

C 27

Cross Tabulation with *Chi Square Test* for *Girls Compose Arts Activity*

Case Processing Summary

Girls AA Arts/Non-Arts	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Growth/Composing AA	2469	100.0%	0	.0%	2469	100.0%

Growth/Composing AA Cross Tabulation

			Composing AA		
			Yes	No	Total
Growth	Yes	Count	229	1565	1794
		Expected Count	255.0	1539.0	1794.0
	No	Count	106	413	519
		Expected Count	73.8	445.2	519.0
	3	Count	16	140	156
		Expected Count	22.2	133.8	156.0
Total		Count	351	2118	2469
		Expected Count	351.0	2118.0	2469.0

Chi Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	21.504[a]	2	.000
Likelihood Ratio	20.146	2	.000
Linear-by-Linear Association	3.746	1	.053
N of Valid Cases	2469		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 22.18.

C 28

Cross Tabulation with *Chi Square Test* for *Girls Listening to Music Arts Activity*

Case Processing Summary

Girls Listening to Music Arts Activity	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Growth/Music AA	2469	100.0%	0	.0%	2469	100.0%

Growth/Music AA Cross Tabulation

			Music AA		
			Yes	No	Total
Growth	Yes	Count	1432	362	1794
		Expected Count	1430.0	364.0	1794.0
	No	Count	423	96	519
		Expected Count	413.7	105.3	519.0
	3	Count	113	43	156
		Expected Count	124.3	31.7	156.0
Total		Count	1968	501	2469
		Expected Count	1968.0	501.0	2469.0

Chi Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.149[a]	2	.046
Likelihood Ratio	5.792	2	.055
Linear-by-Linear Association	1.281	1	.258
N of Valid Cases	2469		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 31.65.

C 29

Cross Tabulation with *Chi Square Test* for *Hispanic Compose Arts Activity*

Case Processing Summary

Hispanic AA Arts/Non-Arts	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Growth/Composing AA	252	100.0%	0	.0%	252	100.0%

Growth/Composing AA Cross Tabulation

			Composing AA		
			Yes	No	Total
Growth	Yes	Count	8	165	173
		Expected Count	15.1	157.9	173.0
	No	Count	8	28	36
		Expected Count	3.1	32.9	36.0
	3	Count	6	37	43
		Expected Count	3.8	39.2	43.0
Total		Count	22	230	252
		Expected Count	22.0	230.0	252.0

Chi Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	13.357[a]	2	.001
Likelihood Ratio	11.611	2	.003
Linear-by-Linear Association	7.336	1	.007
N of Valid Cases	252		

a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is 3.14.

C 30

Cross Tabulation with *Chi Square Test* for *LEP Dance Arts Activity*

Case Processing Summary

LEP AA Arts/ Non-Arts	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Growth/Dance/Move AA	289	100.0%	0	.0%	289	100.0%

Growth/Dance/Move AA Cross Tabulation

			Dance/Move AA		
			Yes	No	Total
Growth	Yes	Count	70	133	203
		Expected Count	78.7	124.3	203.0
	No	Count	25	22	47
		Expected Count	18.2	28.8	47.0
	3	Count	17	22	39
		Expected Count	15.1	23.9	39.0
Total		Count	112	177	289
		Expected Count	112.0	177.0	289.0

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.072[a]	2	.048
Likelihood Ratio	5.968	2	.051
Linear-by-Linear Association	3.142	1	.076
N of Valid Cases	289		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 15.11.

C 31

Cross Tabulation with *Chi Square Test* for *Special Ed Compose Arts Activity*

Case Processing Summary

Sp Ed Compose AA Arts/ Non-Arts	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Growth/Composing AA	539	100.0%	0	.0%	539	100.0%

Growth/Composing AA Cross Tabulation

			Composing AA		
			Yes	No	Total
Growth	Yes	Count	67	346	413
		Expected Count	65.1	347.9	413.0
	No	Count	18	80	98
		Expected Count	15.5	82.5	98.0
	3	Count	0	28	28
		Expected Count	4.4	23.6	28.0
Total		Count	85	454	539
		Expected Count	85.0	454.0	539.0

Chi Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.804[a]	2	.055
Likelihood Ratio	10.151	2	.006
Linear-by-Linear Association	1.789	1	.181
N of Valid Cases	539		

a. 1 cells (16.7%) have expected count less than 5. The minimum expected count is 4.42.

C 32

Cross Tabulation with *Chi Square Test* for *Special Ed Dance Arts Activity*

Case Processing Summary

Sp Ed Dance AA Arts/Non-Arts	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Growth/Dance/Move AA	539	100.0%	0	.0%	539	100.0%

Growth/Dance/Move AA Cross Tabulation

			Dance/Move AA		
			Yes	No	Total
Growth	Yes	Count	126	287	413
		Expected Count	131.8	281.2	413.0
	No	Count	28	70	98
		Expected Count	31.3	66.7	98.0
	3	Count	18	10	28
		Expected Count	8.9	19.1	28.0
Total		Count	172	367	539
		Expected Count	172.0	367.0	539.0

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	14.384[a]	2	.001
Likelihood Ratio	13.199	2	.001
Linear-by-Linear Association	6.109	1	.013
N of Valid Cases	539		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 8.94.