DOCUMENT RESUME

ED 471 383 CS 511 444

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TITLE The Relationship of Listening to Classical Music on First Graders' Ability To Retain Information.

PUB DATE 2002-07-00

NOTE 39p.; Master of Arts Action Research Project, Johnson Bible College.

PUB TYPE Dissertations/Theses (040)

EDRS PRICE EDRS Price MF01/PC02 Plus Postage.

DESCRIPTORS Action Research; *Classical Music; Grade 1; *Instructional Effectiveness; Primary Education; Reading Comprehension; *Reading Improvement; *Reading Instruction; *Retention (Psychology)

IDENTIFIERS *Mozart Effect; Tennessee (East)

ABSTRACT

In traditional reading and CARE lessons (a curriculum used to help students learn to read and identify sounds), music is not played to enhance the learning environment. However, some studies have shown that when music is played during learning experiences there is more retention of the material. This research project compared the traditional teaching method with an enhanced learning environment. During a 6-week period of time, the researcher worked with 39 first grade students between the ages of 6 and 7 at a suburban elementary school in East Tennessee. All of the students were involved in both learning environments. In the enhanced learning environment classical music was played in the background during the lessons. During the first treatment, the students were exposed to traditional methods of teaching. At the end of the first 3-week segment, the students were given a test to determine how much information they retained. The students were then exposed to three weeks of classical music played in the background during their lessons. Following the treatment the students were given another test to determine how much information they retained. Paired-sample t-tests were used to compare scores of the tests of both the Reading and CARE lessons. The t-test for reading revealed that there was a significant difference between the scores of first grade students during the traditional method of teaching reading and the enhanced reading environment using music. The t-test for CARE also revealed that there was a significant difference between the scores of first grade students during the traditional method of teaching reading and the enhanced CARE environment using music. This study shows that the traditional learning environment for teaching reading was more effective for recall information. This study also shows that the enhanced learning environment for teaching CARE was more effective for recalling letter sounds and names, implying that the enhanced learning environment for teaching CARE is more effective. Appendixes contain approval forms. (Contains 25 references, 2 tables, and 1 figure.) (Author/RS)

The Relationship of Listening To Classical Music on First Graders' Ability to Retain Information

An Action Research Project

Presented to

the Department of Teacher Education

of Johnson Bible College

In Partial Fulfillment

of the Requirement for the Degree

Master of Arts in

Holistic Education

By

Erin Lewis
July 2002

Abstract

A child's ability to retain information plays a key role in the education of the child. In traditional reading and CARE lessons, music is not played to enhance the learning environment. However, some studies have shown that when music is played during learning experiences there is more retention of the material. In and out of schools, people are realizing that music may enhance the learning of students in the classroom. In schools today, educators are realizing that they need to use various strategies and aids to enhance the curriculum and learning of the students. In order to enhance the curriculum and learning of the students, educators need to research the effectiveness of these various strategies and aids. This research project compared the traditional teaching method with an enhanced learning environment.

During a six-week period of time, the researcher worked with thirty-nine first grade students between the ages of six and seven at a suburban elementary school in East Tennessee. All of the students were involved in both learning environments. In the enhanced learning environment classical music was played in the background during the lessons.

During the first treatment, the students were exposed to traditional methods of teaching. At the end of the first three-week segment, the students were given a test to determine how much information they retained. The students were then exposed to three weeks of classical music played in the background during their lessons. Following the

treatment the students were given another test to determine how much information they retained. All of the students participated in both treatments at the same time.

Paired-sample t-tests were used to compare scores of the tests of both the Reading and CARE lessons. The t-test for reading revealed that there was a significant difference between the scores of first grade students during the traditional method of teaching reading and the enhanced reading environment using music, at the .05 level of significance. Therefore, the researcher rejects the null hypothesis for reading made in this study. The t-test for CARE also revealed that there was a significant difference between the scores of first grade students during the traditional method of teaching reading and the enhanced CARE environment using music, at the .05 level of significance. Therefore, the researcher rejects the null hypothesis for CARE made in this study.

This study shows that the traditional learning environment for teaching reading was more effective for recall information, implying that the traditional methods are more effective. This study also shows that the enhanced learning environment for teaching CARE was more effective for recalling letter sounds and names, implying that the enhanced learning environment for teaching CARE is more effective.

APPROVAL PAGE

This action research project by Erin Louise Lewis is accepted in its present form by the Department of Teacher Education at Johnson Bible College as satisfying the action research project requirements for the degree Master of Arts in Holistic Education.

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ACKNOWLEDGEMENTS

Acknowledgement is made for the valuable suggestions and help given to me by Dr. Charles Syester.

I would also like to express my gratitude to Tammy Countiss and Diane Przybyszewski for allowing me to use their classrooms and helping me complete my research.

I would like to express my gratitude and love to Laura E. Wilgus for helping keep me sane and laughing in times of sadness.

Finally, I would like to express my love and gratitude to my husband, David, who endured my attitudes and put up with me through this project.

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INTRODUCTION

Significance of the Problem

The human brain has always been a wonder to man. In the early 1990's, a question was raised: Does music affect human intelligence? One theory suggested was the Mozart effect.

Does listening to Mozart really make people smarter? The question that comes to mind is, can classical music really help people retain information?

If classical music really does help people retain information, children could learn much more in the early years of their life. Will classical music help children to retain information from a reading lesson?

Statement of the Problem

Will classical music, if used as a teaching tool, help children remember the information presented to them during reading lessons? The present study investigated whether classical music helps children in the first grade retain information presented to them in reading lessons.

Definitions

C.A.R.E. - Curriculum used to help subjects learn to read and identify sounds.

C.A.R.E. test– subjects were shown 26 flashcards, each with a different letter of the alphabet. Subjects were then asked to identify the letter. The subjects were then shown

the same 26 cards with the addition of 6 digraph cards – subjects were asked to identify the sound created by each letter or digraph.

Reading Lesson – each reading lesson involved the C.A.R.E. curriculum and Scott-Foresman reading curriculum.

A.S.L –American Sign Language.

Scott-Foresman Test – test created by publisher.

Classical Music – The classical music played was Tchaikovsky.

Limitations

The subjects were already assigned as a class by the principal of the school.

The researcher was unable to randomly choose the sample for the study.

Three children attended an ESL class.

Three children attended speech class.

English was not the first language for four children.

One child used mostly ASL at home.

Nursery Rhymes and other such music could have been played during the reading lessons, in which case the classical music was played along with the nursery rhymes and other such music. This occurrence happened during both the no music section and the music section, the nursery rhymes were used in conjunction with the reading curriculum.

Assumptions

The reading ability level of the subjects was normally distributed in the class.

The researcher and the classroom teacher taught the research content in the same manner.

The time of a reading lesson was an average of 40 minutes.

The lessons for the two treatments were of equal difficulty.

Hypothesis

There is no difference between learning as measured by the Scott-Foresman test between children in a first grade class who had listened to classical music with the reading lesson and those first grade students who had not listened to classical music with the reading lesson, at the 0.05 level of significance.

There is no difference in the recognition of alphabetical letters and sounds as measured by the C.A.R.E. curriculum test between children in a first grade class who had listened to classical music with the reading lesson and those first grade students who had not listened to classical music with the reading lesson, at the 0.05 level of significance.

Chapter 2
REVIEW OF RELATED RESEARCH

Music and Children

Music has been the topic of conversation in education for decades. It is not just the sound of the music, but the composers, the development, and the influence music has on people. "The power of music has received much public attention in the past several decades. From the strong grip that rock and roll has on American adolescents to the ongoing struggle to keep music education in the classroom – music influences our children" (Anderson, et. al, p. 14).

In the 1950's, a man named Dr. Alfred Tomatis came up with a theory called the Mozart Effect. "Research with Mozart's music began in France in the late 1950's when Dr. Alfred Tomatis began his experiments in auditory stimulation for children with speech and communication disorders." (Mozart Effect Resource Center). Some research has shown that music does have an effect on children. Bucko states that the environment of the classroom can have an effect on the mind's "readiness to accept and retain information"(p. 3). Bucko also states, "The classroom is often a very unnatural environment" (p.3). However using music can change that "unnatural" feel. "Although there are differing opinions on the effects of music, current studies suggest that incorporating background music into the learning environment may help to improve students' academic performance and create a positive effect on cognitive development" (Anderson, et. al., p. 8). Also, Campbell has something to say about music helping

children be comfortable in the classroom. He states, "In short, once again, as your child walks through that door to begin his first day of school, music can be a friend to support and guide him, deepening his experience and enhancing his daily life" (p. 142).

Music can set the mood of an area. It can be used to relax, confuse, and stimulate thoughts or other moods. "Research also shows that classical music by Mozart can temporarily improve concentration and IQ" (Campbell, abstract). In a recent study by Behar, she states, "Music has been shown to increase both concentration and comprehension" (p. 4).

Research by Chalmers, Olson, and Zurkowski found that classical music played in a lunchroom lowered the noise level of students. They used three treatments, no music, classical music, and popular music. "During each of the three no-music periods, the decibel level of noise in the lunchroom remained fairly stable. When classical music was played, the noise level dropped an average of 6 decibels or 7%. The decrease in noise while popular music played was slightly greater, showing a 10-decibel or 12% drop" (p. 44). It has been shown that classical music can calm the behavior of children, enhance learning, reduce stress, and bring up creativity levels. Many teachers in today's classrooms believe that silence in the classroom is the only way to learn. Silence may be one of the worst things for the classroom if that is the only technique used. Imagine if the whole world was put to silence. No noise anywhere. Life would be horrible. Yoon states, "Life would be very humdrum without music's existence, because music is a natural part of people's lives and influences their thoughts, feelings, and ways of interacting with themselves and others" (p. 8). Fox states, "The research tells us that the 'quiet' crisis of

America's youngest children may have even more serious, lasting consequences for children and families, and for the nation as a whole, than we previously realized" (p. 24).

In a plea advocating the use of background music in a special education, Mahler states, "These forgoing comments are meant to indicate strongly that even unobtrusive music is a powerful medium of maintaining or changing a wide range of behaviors – emotional, physiological, and cognitive" (p. 4). Music can create a mood in us. "Different music selections trigger different emotional responses" states Davies. (p. 149). Music can help us focus on the task at hand, can calm nerves, stir up a frenzy, or create a feeling such as sadness or happiness. "Music can make learning more focused and effective. In addition, music creates a memorable and enjoyable climate conducive to learning" (Anderson, et. al., p 20).

Brain Research

Some researchers argue that the use of Mozart in classrooms does not enhance learning. Newman, *et al.* created an experiment using Mozart's music. "Using a within-subject design, Rauscher, *et al.* rotated 36 college students through three experimental conditions (Mozart, silence, and relaxation), each lasting approximately 10 minutes. Following each treatment, a subtest of abstract-visual reasoning from the Stanford-Binet IV intelligence test (Thorndike, Hagen, & Sattler, 1986) was administered" (p. 1379). They state, "These results lead us to conclude that brief listening to classical music, specifically a movement of a Mozart piano sonata, does not enhance the subsequent spatial problem-solving of college students" (p. 1386). Behar also found insignificant

results. In her study Behar used "Nine third and fourth grade students in a self-contained special education class" (p. 4). Could it be that these researchers did not use the technique of the Mozart effect effectively?

Other researchers believe that music is a tool that should be used in classrooms around the world. Anderson's crew used first grade, fourth grade cross-categorical special education, third grade cross-categorical special education and fourth grade resource students in their study. They found that, "test scores indicated that the students did significantly better when compared to pre-intervention review test scores" (p 28). They found that, "Before the intervention, 49% of the students received an A or B. After the intervention, this number increased to 77%" (p. 28). Snyder states, "Concurrently, early exposure to music may be necessary, or greatly enhance, development of other cognitive processes and intelligences" (p. 166). She also states, "Music stimulates and motivates critical thinking. Drill will not replace meaningful and diverse experiences that create an open door for learning" (p. 166). Drill is not something that can be thrown out the door. When used in addition to music, the results could be wonderful. In conjunction with that statement Mahler states, "[music's] impact is both conscious and unconscious" (p. 1). Campbell said, "Music can be especially useful in helping your kindergartener or first grader to read. Reading readiness involves a number of distinct abilities to understand that visual parts of words correspond with their spoken sounds; and the ability to recognize words immediately, without having to sound them out. Music is most effective in helping children with the latter two skills" (p. 159)

"Although the research indicates that music is an important part of our culture, this impact is not always recognized in the field of education" (Anderson, et. al., p. 14). Many states are cutting back on fine arts programs. Programs such as art, music, and band. "Music education is dwindling from schools today, despite the positive research" (Behar, p. 14). This could be detrimental to children. Cutting such programs could only create problems in the future.

In connection with the positive research, it is also shown in research that the neurons in the brain are connected during musical experiences. To develop some of the most crucial parts of the brain, musical experiences may be needed to connect the neurons. Snyder states, "Neuron placement occurs for all intelligences, or in all centers of the brain, depending upon experience. Specialized areas are reserved for music. If children have experiences with music, those areas become rich with neurons, and those neurons develop long connectors (dendrites) which will create strong connections with other parts of the brain" (p. 166). Mahler agrees with that statement by saying, "The right hemisphere appears to be dominant for music scanning, for recognizing musical tunes and pitch, for graphic design, sculpture, color, spatial relationships, and the like. The left hemisphere seems to be responsible for using the tools with have been developed to analyze, describe, and manipulate music and art" (p. 9). Therefore, by using music in the classroom both the left hemisphere and the right hemisphere will have to be used instead of just one of the hemispheres. "Studies have shown that the left hemisphere of the brain processes language while the right hemisphere processes music" (Anderson, et. al. p. 13). Davies states, "Music synchronizes, the right and left hemispheres of the brain...Once a

person is motivated and actively involved, learning is optimized" (p. 148). Music makes connections in the brain, making these connections can enhance learning. Campbell states, "Can music make your child more intelligent? Certainly it can increase the number of neuronal connections in her brain, thereby stimulating her verbal skills. It can teach her good study habits, aid in her effort to read and comprehend mathematical concepts, and help her memorize facts with ease" (p. 4)

"The classroom environment needs to be an atmosphere where students are interested and motivated to learn" (McGovern, p.4). Classical music played in the classroom has been used to create a better classroom environment to motivate learning and improve concentration. McGovern states, "Results suggested that the project really helped to motivate students, and to help get students on-task quicker. The music seemed to enhance the classroom environment on many levels" (p.12). McGovern used music "to positively enhance the classroom climate. Classical music was used as background music while the teacher was instructing or students were working. This music was used at a very low volume that could really only be heard when the room was completely quiet" (p. 8). Anderson stated in her study, "the level of concentration rose, resulting in fewer requests for repetition of words, sentences or directions" (p. 29). James states, "I use music to foster children's language and math development. Frequent use of music allows children to add to their understanding of the rhythm of language – in a joyful, natural way" (p. 36). "People are innately responsive to music....Music and language have similar roots", states Moravcik. (p 27).

Playing background music does not just help students to concentrate but to motivate, create a good environment, and overall good atmosphere. Bucko states, "Friendly classmates, nice surroundings, gentle colors, cleanliness, classical music, and supportive teachers comprise a healthy learning environment" (p. 3). The use of background music has reduced stress in more than one study. However, it also helps students to concentrate, and it provides a good classroom environment. "Music provides a positive emotional climate conducive to learning. Throughout the intervention, it was observed that the stress levels of our students decreased, while their ability to focus and retain information increased" (p. 30). When talking about stress, Davies states, "Stress reduces the flow of blood and oxygen to the brain, results in mental blanks, a reduced willingness to take intellectual risks, difficulty engaging in higher-level thinking, and often a sense of helplessness" (p. 150). Music can help reduce the stress felt in classrooms at times. Campbell sums it up nicely when he states, "There is something about music that invites people to drop their personal preoccupations and celebrate together. Children are no exception" (p. 154).

Mahler states, "Put another way, background music can accentuate, maintain, or attenuate overt behaviors in response to conscious sensory stimuli" (p. 4). He also states, "The natural musicality of young children is readily 'shut off' with increased hemispherical differentiation and school left-brain emphasis...If music is "worth doing," it is important to begin early and continue frequently and regularly into at least adolescence" (p. 9). It is sad that once children are in grade school they rarely hear music at school. Music has been shown to help children; we should be using it in classrooms

today. Anderson states that they even had some unexpected results when playing background music. She states, "An unexpected result of playing classical music was that students behavior improved throughout the implementation of the intervention" (p. 29). Anderson is not the only one who has found improvements while playing background music. Campbell says, "Music therapists and other professionals working with developmentally delayed children have increasingly employed music to help correct problems associated with delayed motor development, poor muscle tone, hyperactivity, and sensory processing disorders" (p. 92). If music is helping children we need to be using music to help the children in our classrooms instead of just reading about the results.

Conclusions

Music is an important part of people's lives. It helps to relieve stress, motivate learning, and can create a feeling of a safe environment. Using music can connect neurons with other parts of the brain. Using classical music as a tool may help students retain much needed information. Mahler states "If the conceptual hurdle is passed and adequate time, money, personnel, and patience is devoted to exploring the expanded potential of music, we may indeed discover an important 'lever of learning'" (Mahler, p.10). Some traditional teachers may not be able to cope with changing the routine. Thus, leaving the "conceptual hurdle" in front of some. Music "contradicts our traditional classrooms in which students learn by mostly listening and seeing" (Behar, p. 16).

"Music is a tool that fosters relationships through shared interactions with others" (James, p. 36).

When talking about reading, Behar suggests, "The music should not only be played before the story but during it as well. Children also benefit from songs when learning sight words since word recognition is better when the words are put to music" (p. 15). It seems that Behar only used the music during a short period of time and then asked the children questions without the music. Moravcik states, " Early childhood classrooms can be filled with song and movement. These do not need to be, nor should they be, confined to a 10-minute group time" (p 27). Davies also made this suggestion. "Imagine going to see a movie without music – it would be far less interesting. Apply this same idea to lessons. Music pulls the listener into the setting, stimulating interest, creativity, and more complex thinking" (p. 150)

Even so, some will still say that music has no significant impact. Behar's results could have been because of her procedure. Behar selected "Ten random days over a month's time were utilized for reading stories to the students. On five days there was classical music playing softly in the background and on the other five days no music was played. There was no pattern to the days with and without music. After each story was read, the students responded to a series of comprehension questions. This study revealed that the differences in the students' responses in both types of sessions were

insignificant" (p. 4-5). Behar read the stories to the children. She states, "If the students were reading to themselves, the results may or may not have been different" (p. 7). If Behar's project had been five consecutive days with music and five consecutive days with no music would her results be different today? If so, she would be an advocate for background music in classrooms today.

"And even if the results are less than the hope, music in
the answers will never be known
without the effort" (Mahler, p. 5)

Chapter 3

METHODS AND PROCEDURES

Sample

This study took place in a school in Eastern Tennessee. There were 39 first grade students ranging from age 6-7. There were 18 males and 21 females from various socio-economic backgrounds.

Timeline for the study

The study took place within two three-week periods during the months of January - March. In the first three-week period the students learned reading and C.A.R.E. the traditional way, with no background music. In the second two-week segment, the students learned reading and C.A.R. E. with classical music played softly in the background. The reading lessons were approximately 40 minutes long during both parts of the experiment.

Testing

The test given for the C.A.R.E. portion of the experiment was a curriculum test created for the CARE system. The test that was given for the Scott-Foresman portion of the experiment was a book test that was created for the Scott-Foresman curriculum. The tests were given at the end of the three-week treatments of no music and music.

Experimental Factor

The experimental factor that was introduced to the subjects was classical music that was played during the reading and C.A.R.E. lessons. The experimental factor was controlled by the researcher during the reading and C.A.R.E. lessons of the second three weeks. (see Figure 1)

	No Music (1^{st} Three Weeks)	Music (2^{nd} Three Weeks)
READING	All Students in Sample Group	All Students in Sample Group
CARE	All Students in Sample Group	All Students in Sample Group

Figure 1
Experimental Design

Each participant in the study experienced both factors. The students learned reading without background classical music and then took a test at the end of the first three-week period. During the second three-week period, the students learned reading with classical music playing in the background and then took a test at the end of the second three-week period. There was one test after the classical music and no music segments for the Scott-Foresman and C.A.R.E. curriculum. The differences between the scores for the tests were then compared. The classical music used were classical pieces created by Peter I. Tchaikovsky which were *1812 Overture*, The Nutcracker Suite; *Miniature Overture*,

March of the Toy Soldiers, *Dance of the Sugar Plum Fairy*, *Waltz of the Flowers*, *Symphony No. 6*, and *Pathetique: Mvt. I.*

Statistical Analysis

The researcher used a paired sample t-test to compare the scores for the reading with music and without music. A paired sample t-test was also used to compare the scores for CARE with music and without music.

Chapter 4

RESULTS

Analysis of Data

In this study, the researcher tried to determine if using music in the classroom would help first grade children retain information presented to them during reading and CARE lessons. There were thirty-nine subjects involved in both the experimental and control groups. For the first three weeks, the students were subjected to traditional reading lessons. Then for the second three weeks, the students were subjected to classical music during their reading and CARE lessons.

The researcher analyzed the data collected throughout the research using a paired sample t-tests. The data for the reading lessons, indicated that there was a significant difference between the two treatments at the .05 level of significance. As can be seen in Table One. Therefore, the researcher rejects the stated hypothesis for reading.

TABLE 1

Comparison of Scores for Reading
during No Music and Music Treatments

Group	N	Mean	Mean Difference	Std. Error of Means	t ratio	Sig. (2-tailed)
Control	39	9.2308	.4103	.18989	2.161	.037*
Experiment	39	8.8205				

* Significant at the .05 level

The results indicate that there is a significant difference in the reading and CARE test scores on responses given by subjects. When comparing the data for the CARE lessons, the researcher found that there was a significant difference found at the .05 level of significance. This can be seen in Table Two. Therefore, the researcher rejects the stated hypothesis for CARE.

TABLE 2

Comparison of Scores for CARE during
No Music and Music Treatments

Group	N	Mean	Mean Difference	Std. Error of Means	t ratio	Sig. (2-tailed)
Control	39	117.2821	-1.9467	.60246	-3.235	.003**
Experimental	39	119.2308				

** Significant at the .05 level

Chapter 5

SUMMARY, CONCLUSIONS, RECOMMENDATIONS

Summary

At the end of the three weeks of the control activity in which the students were taught by the traditional means for reading and CARE, a test for reading consisting of 10 multiple choice items worth 1 point each, and a CARE test were given. At the end of the three weeks of experimental activity, in which the students were taught with classical music played in the background during lessons and tests, the students were given another test for reading consisting of 10 multiple choice questions worth 1 point each, and a CARE test were given. The researcher conducted the study to compare the two methods of traditional teaching and teaching with background music. The study investigated whether there would be a significant difference between traditional ways of teaching and an enriched environment. The researcher found that there was a significant difference at the .05 level of significance for reading and CARE.

Conclusions

The use of music in the classroom during reading lessons did make a significant difference in the reading comprehension of students. The use of music during the CARE lessons also made a significant difference in the letter and sound recognition of students.

The researcher found that no music helped the children during reading. However, the researcher found that during CARE, music helped the students.

One possible reason this may have occurred is that the music used during the reading may have been too loud for the students while the teacher was talking.

During the treatments of music the researcher observed the children's behavior was better than when the traditional methods of teaching were used. During the treatments the children were more prone to listen and concentrate harder on the task at hand.

Students who may have never been exposed to classical music would sometimes hum the music when it was not being administered (such as during math time or recess). Students would also ask for the music to be played during times when the class would be too noisy or other times throughout the day.

Recommendations

The researcher recommends that further research should be conducted using music in the classroom. Further research could focus on other types of classical music played in the classroom, during different times of the day, or perhaps during quiet reading times.

The research did conclude that the use of music during the CARE lessons did not inhibit the students learning. Therefore, the use of music in the classroom can be a method that teachers may want to use enhance their classrooms and build up the subjects knowledge of music.

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APPENDICES

APPENDIX A

KNOX COUNTY SCHOOLS
ANDREW JOHNSON BUILDING

Dr. Charles Q. Lindsey, Superintendent

September 14, 2001

Erin Lewis
7900 Johnson Dr.
Box #625
Knoxville, TN 37998

Dear Ms. Lewis:

You are granted permission to contact appropriate building-level administrators concerning the conduct of your proposed research. In the Knox County schools final approval of any research study is contingent upon acceptance by the principal(s) at the site(s) where the study will be conducted. Include a copy of this permission form when seeking approval from the principal(s).

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Good luck with your study. Do not hesitate to contact me if you need further assistance or clarification.

Yours truly,

Mike S. Winstead, Ph.D.
Coordinator of Research and Evaluation
Phone: (865) 594-1740
Fax: (865) 594-1709

Project No. 112

APPENDIX B

Dear Parents,

As the year steadily moves onward, I wanted to mention to you the exciting research that I will conducting in your child's classroom. As an intern, I am required to conduct an action research project. Research has shown that music can make a impact on children's IQ, creativity, visual- spatial perception, attitude, and mood. During the year, I will be conducting an experiment using classical music during reading lessons. I will need your permission for your child's scores to be included in my research. Please note that the **scores will be anonymous**! The experiment will last for six weeks during the year. I would appreciate it if you would please sign and return the attached permission form. I look forward to working with your child.

Sincerely,

Erin Lewis Diane Przybyszewski Tammy Countiss Vicki Andrews

Child's name _____

☐ Give permission for my child's scores to be included in the research.

☐ Do not give permission for my child's scores to be included in the research.

Parent/Guardian's Signature _____

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I. DOCUMENT IDENTIFICATION:

Title: The Relationship of Listening to Classical Music on First Graders' Ability to Retain Information	
Author(s): Erin L. Lewis	
Corporate Source: Johnson Bible College	Publication Date: July 2002

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