Culminating Experience Action Research Projects, Volume 9, Fall 2006

Edited by
Deborah A. McAllister and Benjamin T. Ezell
March 1, 2010

College of Health, Education, and Professional Studies
The University of Tennessee at Chattanooga

Introduction

As a part of the teacher licensure program at the graduate level at The University of Tennessee at Chattanooga (UTC), the M.Ed. Licensure candidate is required to complete an action research project during a 3-semester-hour course that coincides with the 9-semester-hour student teaching experience. This course, Education 590 Culminating Experience, requires the student to implement an action research plan designed through (a) the Education 500 Introduction to Inquiry course, (b) one of the two learning assessments required during student teaching, or (c) a newly-designed project not used as one of the learning assessments.

With funding through a UTC Teaching, Learning, and Technology Faculty Fellows award, the Education 590 course is conducted through the use of an online, course management system (Blackboard Learning System Release 6), allowing for asynchronous discussion and use of the digital drop box feature for submitting required papers.

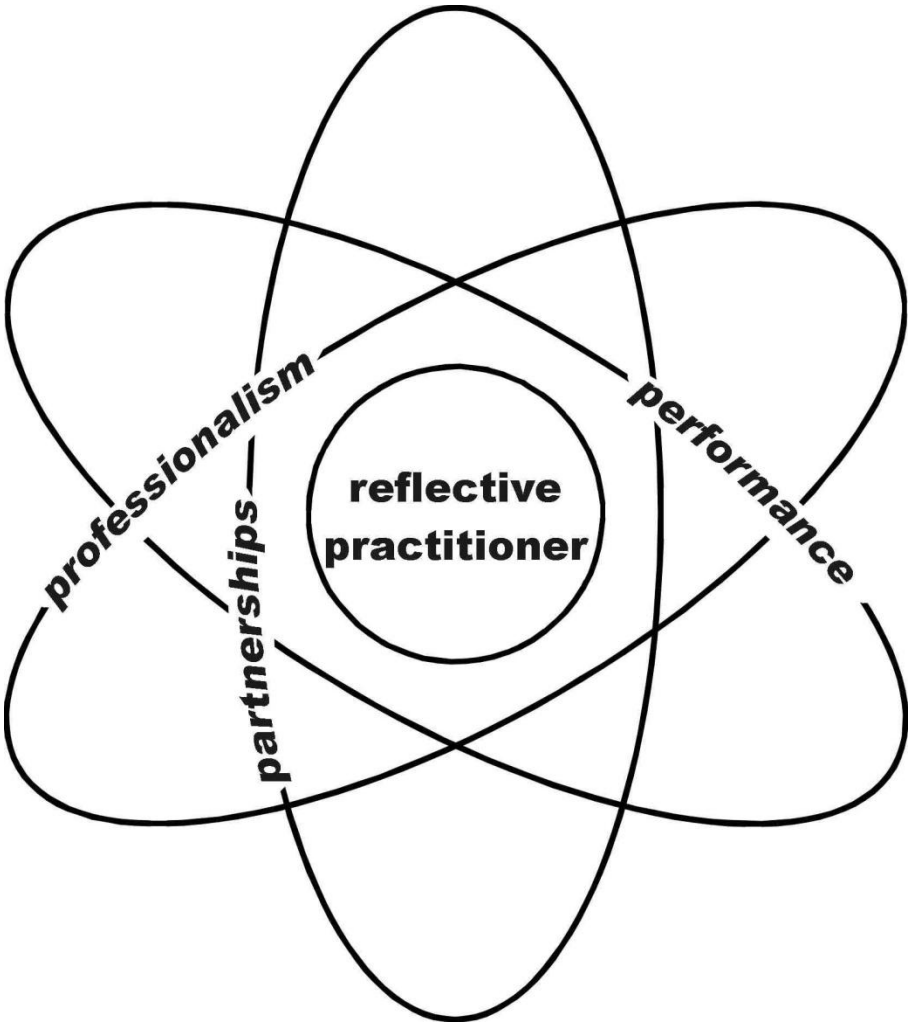
The course syllabus for Education 590 Culminating Experience is presented in the next section, followed by action research projects from fall semester 2006.

Deborah A. McAllister

Benjamin T. Ezell

March 2010

Educ 590 Culminating Experience
Fall 2006
Section 001, By Appointment, 3 credit hours



ATTENTION: If you are a student with a disability (e.g., physical, learning, psychiatric, etc.) and think that you might need assistance or an academic accommodation in this class or any other class, contact the Office for Students with Disabilities at 423-425-4006 or come by the office, 102 Frist Hall.

To enhance student services, the University will use your UTC email address (firstname-lastname@utc.edu) for communications. (See http://onenet.utc.edu/ for your exact address.) Please check your UTC email on a regular basis. If you have problems with accessing your email account, contact the Help Desk at 423-425-2678.

Educ 590 Culminating Experience – Fall 2006
Section 001, By Appointment, 3 credit hours

Instructor

Dr. Deborah A. McAllister
Office: Hunter 310C
Office hours: M and Tu 12:30 p.m. to 5:00 p.m., or by appointment
Phone: 423-425-5376 (Office), 423-842-1607 (Home)
Email: Deborah-McAllister@utc.edu
Web site: http://oneweb.utc.edu/~deborah-mcallister/
Graduate Assistants: Sarah Fritch, Bob Richards

Catalog description

Directed research or development project under faculty supervision. *Prerequisite: Admission to candidacy, approval of M.Ed. committee.*

Recommended text and Web sites

American Psychological Association. (2001). *Publication manual of the American Psychological Association* (5th ed.). Washington, DC: Author.

Online Writing Lab at Purdue University. (2004). *Using APA format.* Retrieved April 23, 2006, from http://owl.english.purdue.edu/handouts/research/r_apa.html

Degelman, D., & Harris, M. L. (2006). *APA style essentials.* Retrieved April 23, 2006, from http://www.vanguard.edu/faculty/ddegelman/index.aspx?doc_id=796

University of Wisconsin - Madison Writing Center. (2004). *Writer's handbook: APA documentation style.* Retrieved April 23, 2006, from http://www.wisc.edu/writing/Handbook/DocAPA.html

Objectives

1. The student can apply a variety of research strategies for use in the elementary, middle grades, and/or secondary classroom, or with professionals in the field. Reflective decision making, a process involving reading, reflecting, and responding, will be applied by the student to evaluate ongoing research techniques, procedures, and materials, in order to become a reflective practitioner.
2. The student will select or design surveys and/or rubrics for data collection in the content area.
3. The student will understand current issues in the content area, including current research methods, materials, professional development and grant opportunities, and programs suitable to all learners, from exceptional populations to diverse ethnic and cultural groups.
4. The student will demonstrate the ability to connect new learning with prior knowledge and skills through a case study conducted during the Induction Experience.

Requirements

1. Select a case study option:
   a. Implementation of the project designed in Educ 500 as your case study. Include modifications to the project, if necessary, based on knowledge gained since the completion of Educ 500. Submit a corrected copy.
   b. Plan to use one of your learning assessments from your first placement as your case study. Submit an outline of the topic, what will be assessed, who will be assessed, how and when assessment will occur, and what instruments will be used. Submit an outline.
   c. Design a new project of your own choosing. Submit an outline for approval.

2. **Prior to data collection, complete the REQUIRED process for UTC's Institutional Review Board For the Protection of Human Research Subjects (http://www.utc.edu/~instrb/ or http://www.utc.edu/Administration/InstitutionalReviewBoard/). Request either an Exemption from IRB Review (Form A) if your sample includes only adults, or an Expedited Review (Form B), if your sample includes children. Form C must be completed at the end of the study. I will print Form C for you to sign. Review the information and forms on the IRB Web site for additional details. An Exemption requires approximately 1 week to process. An Expedited Review may require several weeks to process. (Full board approval is required if there is more than minimal risk to the subject.) Any updates to the IRB process will be followed. Submit all documents to me ELECTRONICALLY through the digital drop box in Blackboard, and one [paper] signature page, with your signature; I will make the photocopies after obtaining signatures. Place a page break in your document such that the signature page will contain only signatures. Your instrument, consent form, and/or assent form MUST contain the following statement:**

   THIS PROJECT HAS BEEN REVIEWED BY THE INSTITUTIONAL REVIEW BOARD FOR THE PROTECTION OF HUMAN SUBJECTS AT THE UNIVERSITY OF TENNESSEE AT CHATTANOOGA.

   Your consent and assent forms must include contact information for Drs. McAllister and Eigenberg, and must contain an option for the participant to discontinue participation as a research subject with no penalty. (Students are still required to complete course work.)

   Participation in this study is voluntary. You may discontinue your participation in the project at any time. Your decision whether or not to participate in the project or to withdraw from the project at any time will in no way affect your academic standing in this course. If you do choose to participate in the study, your participation will be completely anonymous. No one reading the results of the research will be able to identify you. (Reword "you" as "the student," etc., for the parental consent form.)

If you have any questions about the project, you may contact me at xxx-xxx-xxxx, Dr. Deborah McAllister, project advisor, at 423-425-5376, or the Chairperson of The University of Tennessee at Chattanooga's Institutional Review Board for the Protection of Human Research Subjects, Dr. Helen Eigenberg, at 423-425-4270.

You must include a memo (preferably, an email attachment) from the school principal that you have permission to carry out the project.

If there is evidence of prior research that you have done or evidence stated in the literature for your project, place that on the IRB approval form (a sentence or two). If not, cite the HCDE standards that are addressed by your project so the IRB members know why you are teaching/investigating the topic. Check the IRB's Review Status link and your email account for updates on your proposal.

3. Implementation of the project will be completed during the Induction Experience (Educ 596) or the Professional Teaching Experience (Educ 591). Implementation **cannot** occur prior to IRB approval.

4. Completion of the written project, **in APA style**. Include the following elements, each of which should be centered at the top of that section of the paper (not italic, not bold; see p. 113 in the APA style manual:
   a. Introduction to the Problem. Why was this topic selected for study? Is this topic a current national, state, or local issue? Is this topic a staple of the curriculum in your field? Etc.
   b. Review of Literature. Use at least five refereed sources. The online Education Resources Information Center (ERIC) advanced search should be used to locate references in educational journals and documents. See ERIC (http://www.eric.ed.gov/) and/or select the link to the advanced search. **You must use a page number or a paragraph number for all direct quotes. All references should contain complete page numbers (not the first page only, as may be listed in online documents).**
   c. Data Collection and Results. Describe data collection procedures. Provide results of the project, in narrative form and including a chart and/or graph to display the data collected. Analysis of results is from the perspective of higher order cognitive skills. Use descriptive statistical measures (mean, median, mode, frequency distribution, charts, graphs, etc.) for communication of project results. Charts and graphs are imported from Excel to Word and cited as tables and figures. See Microsoft Excel [spreadsheet] software, used in Educ 575.
   d. Conclusions and Recommendations. What generalizations, if any, can be made, based on the results of the case study? What is the consensus of your professional organization with regard to the problem studied? What recommendations would you make for teacher professional development? Is grant money available to support further research in this area? What role could be assumed by the use of technology in this area? **Please address all items in this section.**

e. Copies of the instrument(s) used for data collection. Place original instruments in individual appendices. Do not include published instruments from the Web, books, etc., but place a citation on the page that mentions an instrument and in the reference list.

5. Communication:
   a. Current email address registered with UTC for communication between student and instructor. The UTC email address will point to the email address you have on file. See http://itd.utc.edu/email/stu_saindex.shtml for more details.
   b. Web access to check course announcements and post messages to the discussion forum on Blackboard a minimum of once per week. See http://bb2.utc.edu/.

6. All work is to be computer-generated and turned in through the Blackboard digital drop box. You may complete your project either on the Macintosh or Windows platform. Please use Microsoft Word and Microsoft Excel. If other software is to be used, please ask for approval. Keep a copy of your work on a hard drive or a disk so that it can be accessed, if needed. Reminder: You will need a student ID card to use the university student lab in the University Center.

7. Please note:
   a. Ask another person to proofread your work for correct syntax and semantics before submitting it. You are encouraged to post it to the Blackboard discussion forum.
   b. The Writing Center is located in 119 Holt Hall. See http://www.utc.edu/~scribble/ for hours and information.
   c. Case studies may be displayed at a professional meeting and/or gathered for a publication.

8. Previously published student papers:

McAllister, D. A., & Bothman, S. M. (Eds.). (2005). *Culminating experience action research projects, volume 6, fall 2004*. (ERIC Document Reproduction Service No. ED490689)

McAllister, D. A., & Bothman, S. M. (Eds.). (2005). *Culminating experience action research projects, volume 5, spring 2004*. (ERIC Document Reproduction Service No. ED490030)

McAllister, D. A., & Bothman, S. M. (Eds.). (2005). *Culminating experience action research projects, volume 4, fall 2003*. (ERIC Document Reproduction Service No. ED490668)

McAllister, D. A., & Moyer, P. S. (Eds.). (2003). *Culminating experience action research projects, volume 3, spring 2003*. (ERIC Document Reproduction Service No. ED481396)

McAllister, D. A., & Moyer, P. S. (Eds.). (2002). *Culminating experience action research projects, volume 2, fall 2002*. (ERIC Document Reproduction Service No. ED474071)

McAllister, D. A., Moyer, P. S., & Bothman, S. M. (Eds.). (2005). *Culminating experience action research projects, volume 1, spring 2002*. (ERIC Document Reproduction Service No. ED490720)

Grading rubric

Criteria	A	B	C	F
Project outline and IRB approval	Submitted online. Submitted for IRB approval; approval received.	Submitted online. Submitted for IRB approval; approval received.	Submitted online. Submitted for IRB approval; approval received.	Not submitted online. Not submitted for IRB approval, or IRB approval denied.
Instruments	Items appear to be reliable and valid for the case study.	Items appear to be reliable and valid for the case study.	Reliability or validity is questionable.	Reliability and validity cannot be defended.
Data collection and results	Narrative gives descriptive account of data collection and results, and higher order analysis of results; data chart and graph display results accurately and appropriately.	Narrative provides descriptive account of data collection and results, but analysis of results is weak; data chart and graph display results satisfactorily.	Narrative provides limited descriptive account of data collection and results; analysis of results is flawed; data chart and graph display results, but contain errors.	Neither narrative nor chart and graph convey the data collection procedures and results of the study.
Conclusions and recommendations	Provides a cohesive summary to the project; all recommendation areas addressed satisfactorily.	Provides a cohesive summary to the project; most recommendation areas addressed satisfactorily.	Summary lacks insight to the intent of the project; recommendation areas not completely addressed.	Conclusions do not reflect results; recommendation areas not completely addressed.
APA style	APA style elements present: headings, subject-verb agreement, citations, references, abbreviations, commas, semicolons, lists, tables, figures, appendices, etc.	APA style elements present, with minor errors.	Ideas are understandable; acceptable writing style, though not APA.	Written style is inconsistent; difficult to follow the flow of ideas.
Spelling and typographical errors	No spelling errors; minimal typographical errors; correct use of plural and possessive forms.	Spelling and typographical errors present.	Errors detract from quality of project.	Poorly written.
Completion time	All elements completed on time.	Major elements completed on time; some minor elements late.	Most major elements completed late; some or most minor elements late.	No time deadline.
Communication	Open communication between student and instructor. Progress message posted to the discussion forum at least weekly.	Response time is less than once each week.	Response time is less than once in 2 weeks	Response time is less than once in 4 weeks.
Professional quality and usefulness	Previous and current suggestions, and modifications, fully incorporated into project outline; project is relevant to education.	Previous and current suggestions, and modifications, selectively incorporated into project outline; project is relevant to education.	Previous and current suggestions, and modifications, minimally incorporated into project outline; project is relevant to education.	Previous and current suggestions, and modifications, not incorporated into project outline; project has little relevance to education.
Represents graduate level work	Completed project is presented as a coherent whole.	All project elements present but project is not presented as a coherent whole.	One or more project elements missing; project is not presented as a coherent whole.	Major project elements missing; project is not presented as a coherent whole.

Week (Tentative course schedule, subject to change.)		**Assignment due**
1	Week of 08/21/06 (and prior meeting 04/25/06) Student teacher meetings; 1st placement begins	Check email account; access Blackboard. Educ 590 will meet once.
2	Week of 08/28/06	Case study option selected; proposed outline posted to discussion forum. **Paperwork submitted for IRB approval (Exemption/Form A, Expedited Review/Form B).** **Instruments must be included with both Form A and Form B.** **Parental consent form and student assent form must be included with Form B.** **Participant consent form must be included with Form A.** **Letter of approval from school principal must be included with both Form A and Form B.** **Copy of IRB approval placed in my mailbox in Hunter 311, when received, if not sent by email.**
3	Week of 09/04/06 Labor Day Holiday, M 09/04 (UTC/HCDE)	Begin case study work on introduction, review of literature, and instruments; place file in digital drop box for review and for a check of APA style.
4	Week of 09/11/06	Begin data collection, with IRB approval.
5	Week of 09/18/06	Case study work continues.
6	Week of 09/25/06	Case study work continues.
7	Week of 10/02/06	Data collection is complete.
8	Week of 10/09/06 Fall break, M 10/09 – F 10/13 (HCDE) 1st placement ends (?)	Writing of case study.
9	Week of 10/16/06 Second placement begins (?)	Writing of case study.
10	Week of 10/23/06 Fall break, M 10/23 – Tu 10/24 (UTC)	Writing of case study.
11	Week of 10/30/06	Writing of case study.
12	Week of 11/06/06	Writing of case study.
13	Week of 11/13/06	Writing of case study.
14	Week of 11/20/06 Thanksgiving Holiday, W 11/22 – F 11/24 (UTC/HCDE)	Proofreading of case study.
15	Week of 11/27/06	**Completed case study due, Sa 12/02/06, 12:00 p.m. (noon)** **Case study assembled in a single file; placed in digital drop box.**
16	Week of 12/04/06 Second placement ends, M 12/04 (?) Student teacher meeting, Tu 12/05 (?)	**Late case studies accepted.** **IRB Form C completed when we meet** **(I will provide Form C.)**
17	Week of 12/11/06 Th 12/14/06 - Grades due for all students, 12:00 p.m. Su 12/17/06 - Commencement, 2:00 p.m.	**Late case studies accepted;** **not guaranteed to be graded by 12/14/06.**

APA style (general guidelines; use reverse indent)

1. Journal

Last name, Initials., & Last name, Initials. (year). Title of the article in lower case letters except first letter of the title and proper nouns. *Journal name, volume*(number), page number-page number.

Many, W., Lockard, J., Abrams, P., & Friker, W. (1988). The effect of learning to program in Logo on reasoning skills of junior high school students. *Journal of Educational Computing Research, 4*(2), 203-213.

2. Book

Last name, Initials., & Last name, Initials. (year). *Title of the book in lower case letters except first letter of the title and proper nouns.* Place of publication: Publishing Company.

Turner, T. N. (1994). *Essentials of classroom teaching elementary social studies.* Needham Heights, MA: Allyn and Bacon.

3. Software

Last name, Initials., & Last name, Initials. (year). *Title of the Software in Upper Case First Letters* [Computer software]. Place of publication: Publishing Company.

Microsoft Corporation. (1996). *Encarta 97 Encyclopedia* [Computer software]. Redmond, WA: Author.

In example 3, the author and the publishing company are the same, so the word 'Author' is used.

4. Online source

Last name, Initials., & Last name, Initials. (year). *Title of the Web site in lower case letters except first letter of the title and proper nouns.* Retrieved today's date, from complete URL

National Council of Teachers of Mathematics. (2000). *Principles and standards for school mathematics*. Retrieved April 23, 2006, from http://standards.nctm.org/

In example 4, I omit the period '.' at the end so it will not be confused in the address. Others choose to leave one space, then place the period at the end of the URL.

5. ERIC document

Last name, Initials., & Last name, Initials. (year). *Title of the paper in lower case letters except first letter of the title and proper nouns.* Paper presented at name, place, and date of conference, or other relevant information. (ERIC Document Reproduction Service No. XXXXXX)

McAllister, D. A., Mealer, A., Moyer, P. S., McDonald, S. A., & Peoples, J. B. (2003). *Chattanooga math trail: Community mathematics modules, volume 1*. Washington, DC: U.S. Copyright Office. (ERIC Document Reproduction Service No. ED478915)

Professional Organizations (examples)

American Council on the Teaching of Foreign Languages. (n.d.). Retrieved April 23, 2006, from http://www.actfl.org/
Council for Exceptional Children. (2006). Retrieved April 23, 2006, from http://www.cec.sped.org/
International Reading Association. (2006). Retrieved April 23, 2006, from http://www.reading.org/
International Society for Technology in Education. (n.d.). Retrieved April 23, 2006, from http://www.iste.org/
National Art Education Association. (2005). Retrieved April 23, 2006, from http://www.naea-reston.org/
National Association for Music Education. (n.d.). Retrieved April 23, 2006, from http://www.menc.org/
National Association for the Education of Young Children. (n.d.). Retrieved April 23, 2006, from http://www.naeyc.org/
National Council for the Social Studies. (n.d.). Retrieved April 23, 2006, from http://www.ncss.org/
National Council of Teachers of English. (2006). Retrieved April 23, 2006, from http://www.ncte.org/
National Council of Teachers of Mathematics. (2006). Retrieved April 23, 2006, from http://www.nctm.org/
National Middle School Association. (2006). Retrieved April 23, 2006, from http://www.nmsa.org/
National Science Teachers Association. (2006). Retrieved April 23, 2006, from http://www.nsta.org/

Rubrics (examples)

Chicago Public Schools. (2000). *The rubric bank.* Retrieved April 23, 2006, from http://intranet.cps.k12.il.us/Assessments/Ideas_and_Rubrics/Rubric_Bank/rubric_bank.html
Chicago Public Schools. (2000). *How to create a rubric.* Retrieved April 23, 2006, from http://intranet.cps.k12.il.us/Assessments/Ideas_and_Rubrics/Create_Rubric/create_rubric.html
LessonPlanZ.com. (2005). Retrieved April 23, 2006, from http://lessonplanz.com/ (use 'rubric' as a search term)
South Dakota State University. (n.d.). *Rubric template.* Retrieved April 23, 2006, from http://edweb.sdsu.edu/triton/july/rubrics/Rubric_Template.html
Teachnology. (n.d.). Rubric, rubrics, teacher rubric makers. Retrieved April 23, 2006, from http://teachers.teach-nology.com/web_tools/rubrics/
The Landmark Project. (n.d.). *Rubric construction set.* Retrieved April 23, 2006, from http://landmark-project.com/classweb/rubrics/4x4rubric.html

Surveys (examples)

The International Consortium for the Advancement of Academic Publication. (2006). *Resources for methods in evaluation and social research.* Retrieved April 23, 2006, from http://gsociology.icaap.org/methods/

University of Southern Indiana Sociology Department. (2006). *Social research and statistical links.* Retrieved April 23, 2006, from http://www.usi.edu/libarts/socio/stats.htm

Bibliography

American Association for the Advancement of Science. (1993). *Benchmarks for science literacy*. Retrieved April 23, 2006, from http://www.project2061.org/tools/benchol/bolintro.htm

Association of College and Research Libraries. (2006). *Information literacy competency standards for higher education*. Retrieved April 23, 2006, from http://www.ala.org/acrl/ilstandardlo.html

Creswell, J. W. (2005). *Research design: Planning, conduction, and evaluating quantitative and qualitative research*. Upper Saddle River, NJ: Pearson Education, Inc.

Fogarty, R. (1995). *The mindful school: How to integrate the curricula awareness program.* Palatine, IL: IRI/Skylight Training and Publishing, Inc.

Freiberg, H. J., Driscoll, A., & Stetson, R. H. (1992). *Universal teaching strategies.* Boston, MA: Allyn and Bacon.

Gay, L. R., & Airasian, P. (2003). *Educational research: Competencies for analysis and applications* (7th ed.). Upper Saddle River, NJ: Pearson Education, Inc.

Hamilton County Department of Education. (2005). *HCDE standards and benchmarks*. Retrieved April 23, 2006, from http://www.hcde.org/standards/stindex.html

Institute of Education Sciences. (n.d.). *Education resources information center: Welcome to the ERIC database*. Retrieved April 23, 2006, from http://www.eric.ed.gov/

Johnson, A. P. (2005). *A short guide to action research* (2nd ed.). Boston, MA: Pearson Education, Inc.

Leedy, P. D., & Ormrod, J. E. (2005). *Practical research: Planning and design*. Upper Saddle River, NJ: Pearson Education, Inc.

Martin, D. B. (1999). *The portfolio planner.* Upper Saddle River, NJ: Prentice-Hall, Inc.

McAllister, D. A. (2006). *Faculty page – McAllister*. Retrieved April 23, 2006, from http://oneweb.utc.edu/~deborah-mcallister/

McMillan, J. H., & Schumacher, S. (2001). *Research in education* (5th ed.). New York, NY: Addison Wesley Longman, Inc.

Menges, R. J., & Weimer, M. (1996). *Teaching on solid ground: Using scholarship to improve practice.* San Francisco, CA: Jossey-Bass Inc.

Mills, G. E. (2003). *Action research: A guide for the teacher researcher* (2nd ed.). Upper Saddle River, NJ: Pearson Education, Inc.

Mills, S. C., & Roblyer, M. D. (2003). *Technology tools for teachers: A Microsoft Office tutorial.* Upper Saddle River, NJ: Pearson Education, Inc.

National Council of Teachers of Mathematics. (2000). *Principles and standards for school mathematics*. Retrieved April 23, 2006, from http://standards.nctm.org/

National Research Council. (1999). *How people learn.* Washington, DC: National Academy Press. (see also http://www.nap.edu/readingroom/books/howpeople1/notice.html)

National Research Council. (1995). *National science education standards*. Retrieved April 23, 2006, from http://www.nap.edu/readingroom/books/nses/

Novak, J. D., & Gowin, D. B. (1984). *Learning how to learn.* New York, NY: Cambridge University Press.

Palloff, R. M., & Pratt, K. (2001). *Lessons from the cyberspace classroom: The realities of online teaching.* San Francisco, CA: Jossey-Bass Inc.

Provenzo, E. F., Jr. (2002). *The Internet and the World Wide Web for teachers.* Needham Heights, MA: Allyn & Bacon.

Reed, A. J. S., & Bergemann, V. E. (2001). *A guide to observation, participation, and reflection in the classroom* (4th ed.). New York, NY: McGraw-Hill.

Roblyer, M. D. (2003). *Integrating educational technology into teaching* (3rd ed.). Upper Saddle River, NJ: Pearson Education, Inc.

Roblyer, M. D. (2003). *Starting out on the Internet: A learning journey for teachers* (2nd ed.). Upper Saddle River, NJ: Pearson Education, Inc.

Tennessee Department of Education. (n.d.). *Curriculum standards*. Retrieved April 23, 2006, from http://www.state.tn.us/education/ci/standards/index.php

Thomas, R. M. (2005). *Teachers doing research: An introductory guidebook*. Boston, MA: Pearson Education, Inc.

Treffinger, D. J., Hohn, R. L., & Feldhusen, J. F. (1979). *Reach each you teach.* Buffalo, NY: D. O. K. Publishers, Inc.

Tuckman, B. W. (1999). *Conducting educational research* (5th ed.). Fort Worth, TX: Harcourt Brace & Company.

Items available in Lupton Library

Campbell, L., Campbell, B., & Dickinson, D. (1996). *Teaching and learning through multiple intelligences.* Needham Heights, MA: Allyn and Bacon.

Haladyna, T. M. (1997). *Writing test items to evaluate higher order thinking.* Boston, MA: Allyn and Bacon.

Krulik, S., & Rudnick, J. A. (1995). *The new sourcebook for teaching reasoning and problem solving in elementary schools.* Boston, MA: Allyn and Bacon.

Ross, S. M., & Morrison, G. R. (1995). *Getting started in instructional technology research.* Washington, DC: Association for Educational Communications and Technology.

Silberman, M. L. (1996). *Active learning: 101 strategies to teach any subject.* Boston, MA: Allyn and Bacon.

Wilson, B. G. (Ed.). (1996). *Constructivist learning environment: Case studies in instructional design.* Englewood Cliffs, NJ: Educational Technology Publications.

Table of Contents

Using Questioning Strategies During Read-Alouds Enhances Reading Comprehension

Melissa Boyd

Education 590, Fall 2006

The University of Tennessee at Chattanooga

The Institutional Review Board of the University of Tennessee at Chattanooga (FWA004149) has approved this research project #06-203.

Introduction to the Problem

After being in several classrooms, I began to notice that several of the teachers were struggling to find ways to teach the students the best reading comprehension skills. In a placement that involved an upper level elementary class, I found that several students had a difficult time with reading comprehension. At this stage, it is not impossible to teach these skills, but I began to wonder how effective it would be to teach these skills to a younger-aged group. When a child enters school, he or she is at a non reader or beginning-reader stage. Although students at the kindergarten level may not be able to read any or every word in a book, the ability to comprehend the story is there.

Teaching reading comprehension strategies to a child that is a beginning reader may, at first, seem like a challenging job, until you realize that children are naturally inquisitive at this age. Children ask many questions about what they are reading or about what is being read to them. When something sparks a child's interest, the child begins to ask many questions about the subject at hand.

Read Aloud time in a kindergarten class is the perfect time for a teacher to begin to question students about what is being read. Although several of the students in the class may not be able to read the words on the page, the child is able to listen to the story and is able to begin to process what he or she is hearing. During the Read Aloud time, students are able to listen to a story. As the story is being read, the children may begin to question what is happening in the story and/or the teacher will begin to ask clarifying questions of the children about the story. When teachers choose a book to be read aloud, one that sparks the most interest will most likely spark the most questions. When children show an interest in a book, they will begin to ask questions and make comments about the book that is being read to them.

When children are taught skills such as reading comprehension at a younger age, the better he or she will be at reading as they progress in school. If a child is able to learn to question the text that is being read while still in kindergarten, this will be a skill that will last through the rest of his or her school years. It is important, as a teacher, to begin to instill reading comprehension skills in young children so that they will become more skillful and successful readers. It is important for every child to be given the chance to make himself or herself the best reader possible.

Review of Literature

Reading comprehension is a term that can take on many different definitions and can be hard to define, altogether. Pardo (2004, p. 272) states that a common definition of reading comprehension for teachers is that comprehension is a process where students "construct meaning by interacting with the text" through background knowledge, previous experience, textual information, and attitude the reader has toward the text. For a student to comprehend the meaning in what it is being read, he or she must be able to connect with the text, at some level. When a child is able to bring in background knowledge when being read a text, the child has a better chance of comprehending the text. Background knowledge allows for the student to make a deeper connection with the text, which helps the student better comprehend what is happening within the text.

Beck and McKeown (2001) state that research has shown background knowledge to be a very important part of a student understanding the text that is being read. When a student is able to make a connection to the text with prior knowledge and experience, it will assist the student in comprehending that text. McCrimmon (2003) states that a key to comprehension of the text is focusing on connecting the text with prior knowledge. When a teacher begins to present a text, it

is very important to try to help the students make connections with prior knowledge and experience so that the information being read can be better comprehended. Pardo (2004) found that when a student is able to connect more prior knowledge with what is being read, the more likely that student is to be able to comprehend it. If a student is able to bring prior knowledge and experiences to a table, he or she can begin to make the connections to the text that are needed to better comprehend what is being read.

It is crucial that students begin to learn the skills needed to comprehend text at a young age. Abadiano and Turner found that there is a lack of emphasis on teaching comprehension in early literacy programs. An emphasis on decoding in primary grades can overshadow the importance of teaching comprehension skills. Myers (2005/2006) states that it is critical to teach comprehension skills to young children. Benner, Beaudoin, Kinder, and Mooney (2005, p. 250) found that "fundamental beginning reading skills are highly related to later reading success." For a student to become a successful reader, it is important that the reading comprehension skills are taught from a young age. Pardo (2004) found that is "crucial" that teachers begin to teach reading comprehension skills in kindergarten. As students are beginning to learn to read, it is important to teach them the importance of reading the text for meaning. McCrimmon (2003) also adds that it is important to realize that comprehension is more than just having good recall skills; one must also understand what is being read.

Asking questions is something that comes naturally to children. Hervey (2006) states that, from a young age, children try to make sense of the world around them by asking many questions. Teachers know the importance of asking questions of students when reading text. When we ask questions, children begin to think more in-depth about what is being read. Hervey (2006) states that it is also important to encourage children to begin to ask questions about what

he or she is reading. When children ask questions, it can make them more "strategic and critical readers." Students that seek out the answers are able to better comprehend what the text is trying to say. "Questioning lies at the heart of comprehension because it is the process of questioning, seeking answers, and asking further questions that keeps reading going" (Hervey, 2006, p. 68). Children will keep reading when they are able to understand what the text it trying to say.

Moschovaki and Meadows (2005) state that when children comment and question what is being read, it shows the thinking skills that are being used by the children when they are trying to comprehend a text. The children that are able to develop questions about the text being read show that they have a grasp on comprehending that text. Myers (2005/2006) states that a good reader is able to "monitor their understanding" by asking clarifying questions about the text. When a child is examining a text, active questioning exposes the child to the information that may be hidden in the text. Glaubman, Glaubman, and Ofir (1997) state that while children are actively investigating a text, questioning shows the children "vital information" about his or her own comprehension.

Read Alouds are a great way to begin to teach children the strategy of questioning the text being read. Reading aloud to children has been highly recommended for many years. Beck and McKeown (2001, p. 10) state that reading aloud to children has been used in homes and schools for centuries and is the "most highly recommended activity for encouraging language and literacy." When students are read aloud to, it helps them with language that has been decontextualized. Beck and McKeown (2001) state that reading aloud, along with discussion of the text, helps students with the decontextualized language. One of the most valuable aspects of the read aloud is that it gives children the experience needed with the decontextualized language. Beck and McKeown (2001, p. 10) also found that research shows that this experience with

decontextualized language requires the children to "make sense of ideas that are about something beyond the here and now." When the children are required to do this, not only is comprehension raised, but the children are also working on inferencing. Inferencing is a very hard skill to teach, but it goes hand in hand with reading comprehension. For kindergarteners, being read aloud to helps aide in inferring relationships between the pictures and the text. Myers (2005/2006, p. 315) stated that, for kindergarteners that have had books read to them often, they were "better able to infer casual relationships from the illustrations" and relate them to parts of their own lives. This strategy helps make the young children become better readers.

Reading aloud works on this experience with the strategy of 'in the head' operations. Button and Johnson (1997) state that the 'in the head' operations enable children to quickly recall information. Read Aloud is a great time to work on these strategies. This is also a great time to introduce and model comprehension strategies such as questioning. Myers (2005/2006) states that reading aloud to students is a good time to spark students' interest in reading literature and to introduce comprehension strategies for that literature.

There are important things to remember when choosing a text to read aloud to children. The teacher must remember to choose a text that is appropriate for developing better comprehension and language skills. Beck and McKeown (2001) state that the text chosen needs to be "conceptually challenging enough" to cause the children to discuss different ideas presented and for the children to begin to make connections to the text. When a child becomes familiar with a text, they are able to read it before they may even be able to properly decode the words. Button and Johnson (1997) state that teachers should use books during read alouds that children may be familiar with so that they are able to begin to develop "critical concepts of print." It is also important to make sure that the teacher focuses the discussion of the story on

main ideas, and not only on the illustrations, that may cause the children to comment. Beck and McKeown (2001) state that it is important to focus the discussion on the main ideas as they come along in the story. It is also important to allow the children the opportunity to make comments and to be reflective about the story. When teachers are reading the story aloud, students need to be able to have the opportunity to ask questions or make comments about the story as it unfolds. The teacher also needs to make sure that the discussion that develops remains focused on the main ideas of the story. When children are able to question what is being read, the teacher is able to listen for the ways in which the children are beginning to think about the text and to better understand it.

Data Collection and Results

Data Collection

Subjects

This study included eight kindergarten children in a class with a population of 20 children. Each child in the class was given a permission slip to participate in the study. Only eight of the parents returned the slip. The parental involvement at this particular school is rather low. The students that were able to participate in the study are all African-American. All of the children are from varied socioeconomic status and academic status. One child that participated was from the highest reading group and others were from the next to lowest reading group. The reading level in the population of participants ranges from a Pre-A to B level.

Methodology

This project was conducted weekly as a new set of workstations were presented. Each week, the students where given a new topic of study. For each topic of study, several books were read aloud each week about the new topic. As each book was read aloud, a tally mark was

given to each child when a comment or question was posed by that child. For each of the readings, the tally marks were counted and compared for 3 weeks. The number of tally marks for each child showed how many remarks were made for that particular week. Only remarks that displayed comprehension of the text or clarifying questions were counted. At the end of each week, the main book was reread. For this reading, tally marks were completed separately and not considered in the weekly count. This book was used as the familiar text.

Results

When each new set of workstations were set up for the week, the book for the listening center was first presented as a whole group Read Aloud book. For each book, the teacher would begin by connecting the material to the students' prior knowledge. For the first reading of the book, more comments were always made toward the illustrations of the book. Unless children had some prior experience to connect to the text, very little was said that had to do with the main idea of the story. During this reading, very few tally marks were counted. At the end of the week of assignments, students were able to begin to make connections to the text being read. When a Read Aloud would take place about the subject matter, more students were able to ask clarifying questions, make inferences about the text, and make text to self connections. The number of tally marks recorded for the end of the week text was greater than that of the first reading at the beginning of the week. Each week, the results were the same, even as the teacher began to allow the children to make more comments and ask more questions. As children were able to build prior knowledge and personal experiences with the text, the rate of comprehension began to grow. When students had little knowledge of the material presented to them, more comments were directed toward the illustrations of the book. In Figure 1, data show how many

comments or questions were made when a child had little or no background knowledge of the text.

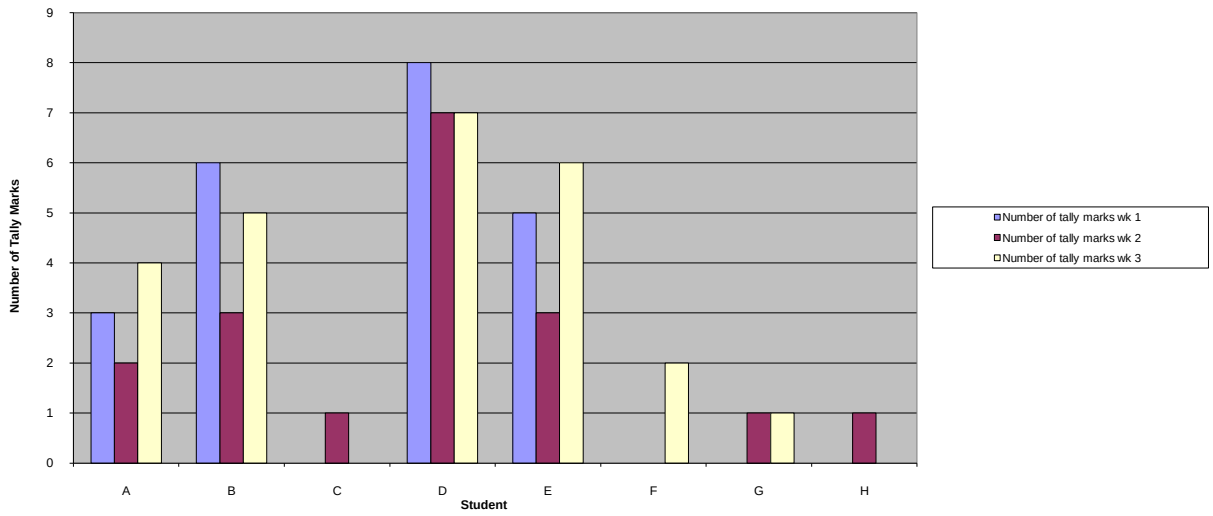


Figure 1. Beginning of the week tally marks for questioning and comments made during a read aloud.

Throughout the week, the students would be reread the book presented on the first day of the week. During each of the Read Aloud sessions, the students were asked comprehension questions such as who, what, when, where, why, and how. Students were also allowed to ask questions when they wanted to clarify something heard in the book. By the end of the week, students were able to use background knowledge and able to recall information when questions were asked of them. Also, students were able to ask more questions and make more comments about the book being read to them. Figure 2 shows the number of questions and comments made during the reading at the end of the week.

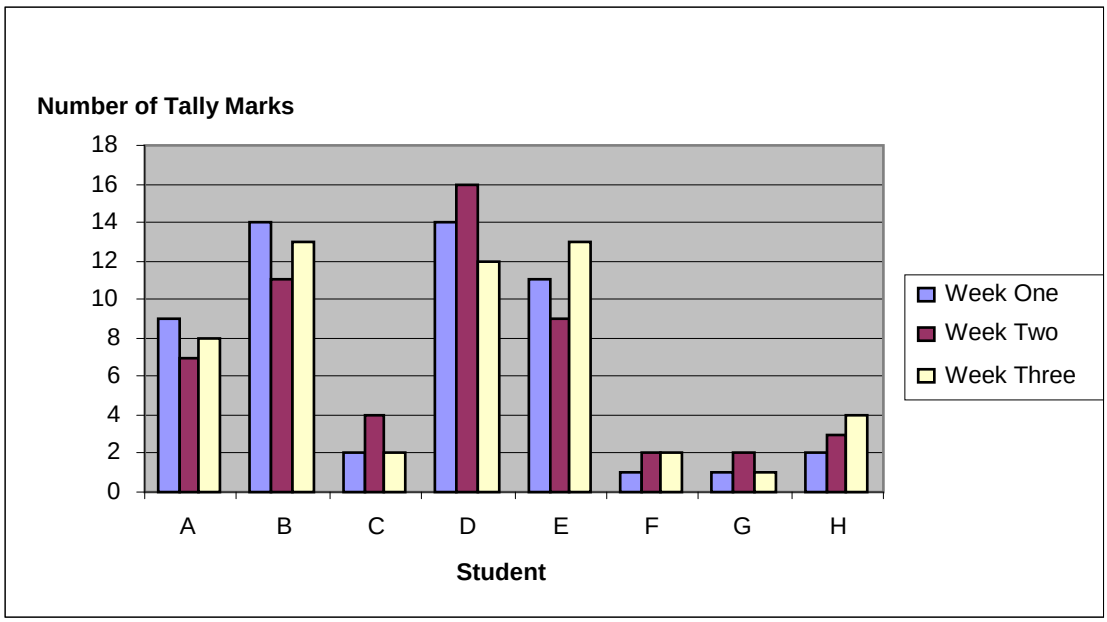


Figure 2. End of the week number of questions and comments made during read aloud.

Conclusions and Recommendations

Conclusions

During this study, I found that the more questions that are asked during a Read Aloud, the more the students are comprehending. When the students are able to ask questions to clarify what is being heard, the teacher is able to see how their thought process is working. If a child is able to question the text of a book, then they are beginning to comprehend what is going on in the text.

When a book was first introduced, the children would always ask fewer questions and make fewer comments about the book. Without the background knowledge to make a connection to the text, the number of comments dropped for most students. As the week progressed, and the students were exposed to the text more often, the students began to make more connections and were able to ask more questions and make more comments. The students were able to better comprehend the text when they were able to make the text to self connections that are so vital in reading comprehension.

By the end of the week, the students were asking mostly clarifying questions and commenting about how the text connected to them. When the students were able to make clarifying questions, they were also able to start to make inferences about the text. The students were able to start to read behind the text and pictures in the book. Students were also able to better answer the questions presented by the teacher when checking for understanding.

Recommendations

After doing this study, I found that, although it is important for the teacher to ask questions of the students, it is also important for the children to be able to ask their own questions. When the children are able to ask questions, they begin to better comprehend the text being read to them. The Read Aloud time is a great time for a teacher to be able to model the strategies young students will to be able to use to comprehend a text. When the teacher models the strategies during Read Aloud time, the students are eventually able to begin to use the same strategies during independent reading.

It is important for teachers to realize that it is very important to begin using these strategies with young children. If children are able to learn these strategies at a young age, they will be able to carry them through the rest of their school years. I would recommend that a teacher take several moments during the week to do a Read Aloud with the students and go over the questioning strategies. Using this time to teach the children how to better comprehend text will be very valuable to each student in the room.

Reading is a very important part of a child's education and there is money available to do research in reading. When researching this topic, there was not a lot of material that covered the area of asking comprehension questions during a Read Aloud. Reading comprehension is not something that is really thought about until children begin testing processes. I feel that it would

be important to learn how to teach very young children, and to begin to look at the area of reading comprehension of young children, as early as possible. This is an area that deserves to be looked at by researchers. This could be a very important area to look at as the processes of testing and assessment become more and more prominent.

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Impact of Enhanced Mathematical Vocabulary Instruction

on Elementary School Math Students

Susan Brazelle

Education 590, Fall 2006

The University of Tennessee at Chattanooga

The Institutional Review Board of the University of Tennessee at Chattanooga (FWA00004149) has approved this research project #06-170.

Introduction to the Problem

One of the biggest problems, in my opinion, with mathematics instruction is a failure to give math vocabulary the time and consideration necessary to build a student's understanding of mathematics language. This is crucial to a student's endeavor in becoming more capable of thinking and communicating in a mathematical context and in the process becoming a logical thinker.

One way to enhance a student's grasp of mathematical terms is to use writing. The students can keep vocabulary journals, recording important words, terms or symbols with explanations of these in his own words. Allowing the student to record meanings in his own words ensures that he understands the terms. This allows a student to make connections that might otherwise be missed. This takes the student to a new level of understanding of, not only how, but, also, why, certain rules and conventions are followed.

The mathematics student of today is more engaged than would have been the case when memorization was a major focus of math classes. There remains a place for memorizing certain facts and formulas, but the focus should be more on building an overall understanding of math so that the student has a better foundation on which to build new knowledge. An integral part of this is building a language so that students can learn to communicate with one another and their teacher to further their mathematics knowledge.

Review of Literature

Correctly understanding the meanings of vocabulary words used in any subject is sometimes difficult, but critically important. If a student is not able to comprehend what he reads, then he is not really reading. A student must take new knowledge from a text and add it to

prior knowledge to truly understand the material covered (Johnson & von Hoff Johnson, 1986). It is even more critical when the subject is mathematics. As Pirie (1998) states:

> Language in its broadest sense is the mechanism by which teachers and pupils alike attempt to express their mathematical understandings to each other. It is well accepted that individuals construct understandings that differ not only from one another but that are likely to differ also from the meaning intended by the originator of a particular communication. (p. 8)

Students must be able to understand the meanings of new words, or words that have new meanings, within mathematics well enough to communicate their understanding to others to be successful in the subject. Many words used in mathematics are familiar words that have a totally different meaning when introduced in the discipline of mathematics.

American education specialists have long been concerned with the reality that many students have a difficult time with the subject of mathematics. One of the biggest goals of mathematics is that students become more capable of thinking in a mathematical context (Greeno, 1997). It becomes necessary with this goal to examine why students do not perform well in this area and to find a solution to enhance success in the future.

In part, the difficulty comprehending mathematical terminology is not only because familiar words take on new meanings, but also because many of the principles involved require more abstract thought processes. As Schell (1982) wrote, “In particular, reading math involves abstractions, specialized symbolism and technical terminology….Research indicates that math is the most difficult content area material to read, with more concepts per word, per sentence, and per paragraph than any other area” (p. 544). And, to complicate matters further, Pirie contends

that a unique communication problem exists in mathematics because language used when talking about mathematics differs from language used when writing mathematics (1998).

Another major roadblock for some students to fully comprehend mathematical vocabulary is spontaneously-created, "quasi-mathematical" vocabularies. As Pirie (1998) states, "These shared meanings arise often and usually without explanation because, when talking with one another, pupils are most likely to revert to ordinary language and seem happy to create spontaneously these quasi-mathematical vocabularies as and when they are needed" (p. 24). With all these possibilities, it becomes apparent that teachers cannot assume that, because one can sometimes compute mathematically, that this translates into comprehending the mathematics language.

The student must be capable of using the mathematics language in order to process and solve mathematical problems of all kinds. A student must have the ability to comprehend and process the language of mathematics in order to successfully exhibit conceptual thinking, reasoning, and mathematical problem solving skills. As Sierpinska (cited in Bussi, Sierpinska, & Steinberg, 1998) shares,

> Mathematics is therefore also a discourse, and, as such is not just a tool for solving problems, but something much more influential. It is a way of seeing the world and thinking about it. It is a universe that is established through communication, whereby people commit themselves to certain *conventions*, build shared understanding of *contexts*, and develop conventional means for jointly establishing and retrieving *presuppositions*. Thus, mathematics is a language seen from the perspective of pragmatics, not semantics or syntax. (p. 51)

Educating a student in mathematics is crucial to many areas of his life. Improved thinking skills impact many subjects in a positive way. Many students report mathematics as their least favorite subject and/or most difficult subject. Cornell stated that he found a correlation between students who liked/disliked mathematics and students who did well/did not do well in mathematics (1999). Not only can success lead a student to better like mathematics, it can also create an avenue for the student's success in mathematics that can transcend into other content areas, in part, just by building the student's confidence.

That there is a need for students to possess a meaningful understanding of mathematical language in order to develop concepts in this content area is widely accepted (Monroe & Panchyshyn, 1995). The need is so great for students to comprehend the instruction and concepts in the discipline of mathematics, that vocabulary instruction must receive careful attention (Gawned, 1990).

In short, developing a good mathematical vocabulary is crucial for students' success. This may be hindered because students may become so involved in performing computations that they fail to develop a deep understanding of the concepts. For this reason, teachers must bear the responsibility of providing the proper vocabulary foundation to ensure their students properly understand and comprehend the terminology utilized in this content area. Cornell (1999) states, "Teachers must take time and care to explain these terms, and to ensure that students understand them, before launching into explanations" (p. 226).

Methodology

Subjects

This research project was completed in a medium-sized magnet school that serves grades K – 12 in a suburb of a medium-sized city in the southeast. The participants were fifth graders,

about the age of 10 or 11, with me as their teacher. The school enrolls 503 students with 266 female students and 237 male students. The ethnic breakdown of the student population is 9% Caucasian, 89% African-American, and 1% other. There two principals at the school, one serves Grades K - 6 and the other serves Grades 7 – 12. There are 31 teachers, 11 are male and 20 are female. The students come from varied socioeconomic backgrounds. Approximately 79% are on free or reduced-cost lunch. The school is a Title I school.

Questions

My questions are the following:

- Do the students comprehend mathematics terms well enough to reiterate the meanings in their own words?
- Do students display a level of understanding that parallels their level of implementation?
- Has this strategy increased the mathematics capability of students, as evidenced by quiz and test scores?

Procedure

For the purpose of my study, I defined mathematics vocabulary in the following way: Words, terms and symbols used in the discipline of mathematics for both instruction and discussion. It is important to realize that mathematics vocabulary is very specialized, and demands special attention and much care.

My study focused on two, fifth grade math classes, one with 21 students (11 male and 10 female), and the other with 22 students (9 male and 13 female). My research took place over a 3-week period. This allowed me to use the first week to become acquainted with the students and to give them a pre-test to evaluate their level of knowledge and familiarity with mathematical terms.

During the 2nd week, I began focused lesson plans that elaborated on the mathematics vocabulary in the current unit to be covered. I began class by giving each student a handout that contains the mathematics vocabulary. The sheet had room for the students to write two definitions: What I think and what I know. I gave the students about 5-7 minutes to determine what they thought a word meant. I allowed them to use any resource they chose. They could utilize their books or talk with their peers about the terms. I did not put them into pairs or small groups, and any students that did not talk about the material being covered were separated from one another for the rest of the class period.

After they had time to record what they thought the terms meant, I called their attention to the front of the class. As a class we discussed the terms. I wrote the correct meanings on the board for them to write on the what I know line. Typically, this took another 5-7 minutes. Following this, I instructed them on the computations of the unit we were covering.

The students began a math glossary in which they kept all of their vocabulary for the duration of the study. After the lesson on the first day, their homework was to record the terms in their own words in their glossaries. This would be the third time they would be working to define the words. I did not assign any computations for that night's homework. It would all be vocabulary.

On the following day, at the beginning of class, I asked students to share their meanings of the terms we have covered. We discussed them again for about 5 minutes. I used this time to clarify any questions the students had discovered individually while working on the terms. During this time, I recorded information regarding the comments made by students and the quality of those comments. The remaining time was spent on traditional instruction of the material. On each day following, I discussed the terms at the beginning of class. On each Friday,

there was a quiz over the material covered during the week. The quiz was split between vocabulary and computation. I also collected student glossaries on Fridays so that I could review them. Their glossaries counted as one homework grade for the week. Other traditional homework assignments were given and graded daily.

I maintained this strategy for the following 2 weeks, for a total of 3 weeks of specialized vocabulary instruction. During the 4th week, I administered a post-test on the material we covered. This was used in comparison with the pre-test. I also asked the students to complete a survey that I used to determine their attitudes toward the instruction.

I implemented this strategy with the afternoon class, class 2. The first class, my control group, received traditional mathematical instruction. The control group was also given a quiz each Friday and traditional homework assignments throughout the week.

Resources

The resources required to complete this project were readily available at the school. They were student textbooks, copy paper and copy machine, and student handouts. Other resources to be utilized, such as a white board and an overhead projector for recording meanings in front of the class, were also available.

Data Collection and Results

My data was collected in three ways: pre-tests and post-tests; as a participant observer during daily discussions, with student comments rated according to a rubric that was explained to them in advance; and weekly quizzes. The following rubric, tables, graphs, and narratives explain my results (see Figures 1, 2, and 3).

1	2	3	4	5
Did not use any mathematical language or did not use it correctly.	Used some mathematical language but did not use it correctly.	Used mathematical language but not correctly at all times.	Used mathematical language and used it correctly most of the time.	Always used mathematical language and always used it correctly.

Figure 1. Rubric used to evaluate student comments during daily discussions of mathematics vocabulary.

	Week 1					Week 2					Week 3				
Value Assigned to Responses Based on Rubric	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Class 2 Experimental Group Respondents	25	15	6	1	0	9	18	22	4	3	2	5	32	14	4

Figure 2. Results of daily discussions of mathematical language.

Figure 2 represents the quality of comments made by students during discussions about current vocabulary. This figure includes information for the experimental group only because discussions with the control group were not as focused and the group was not assigned values according to this rubric. The rubric above was the gauge used to determine what value should be placed on student comments. Figure 2 shows that, in week 1, 40 respondents used no mathematical language or used it incorrectly (values 1 and 2), six respondents used mathematical language but not always correctly (values 3 and 4), and that there were no students that used mathematical language correctly at all times (value 5).

Over time, we can see an improvement in the ability of students to communicate during discussions in a mathematical language. By the 3rd week, only 2 students responded without using the correct language, 14 respond using the correct mathematical language most of the time, and 4 respondents use the proper mathematical terminology all of the time. These results are

encouraging because they show a trend of improving skills of using proper mathematical language.

	Week 1			Week 2			Week 3		
	Mean	Median	Mode	Mean	Median	Mode	Mean	Median	Mode
Class 1 Control Group	83	77	72	88	82	86	85	74	91
Class 2 Test Group	81	76	74	89	87	93	91	88	88

Figure 3. Analysis of results of weekly quiz grades.

The above table displays the quiz grades that were taken weekly. The mean, median, and mode for each were computed. In comparing the results, there is an obvious trend upward for the experimental group with the average rising from 81 in week 1 to 91 in week 3. The results for the control group are not as impressive with the average rising from 83 to only 85. Interestingly enough, the average for the 2nd week for the control group was higher than for the final week. These results suggest that there might be some positive effect from the enhanced vocabulary instruction. The statistical landmarks for the pre-test follow, in Figures 4, 5, 6, and 7.

Pre-test Results

	First Class	Second Class	Total
Mean	39	29	34
Median	37	30	31
Mode	57	20	31

Figure 4. Pre-test results.

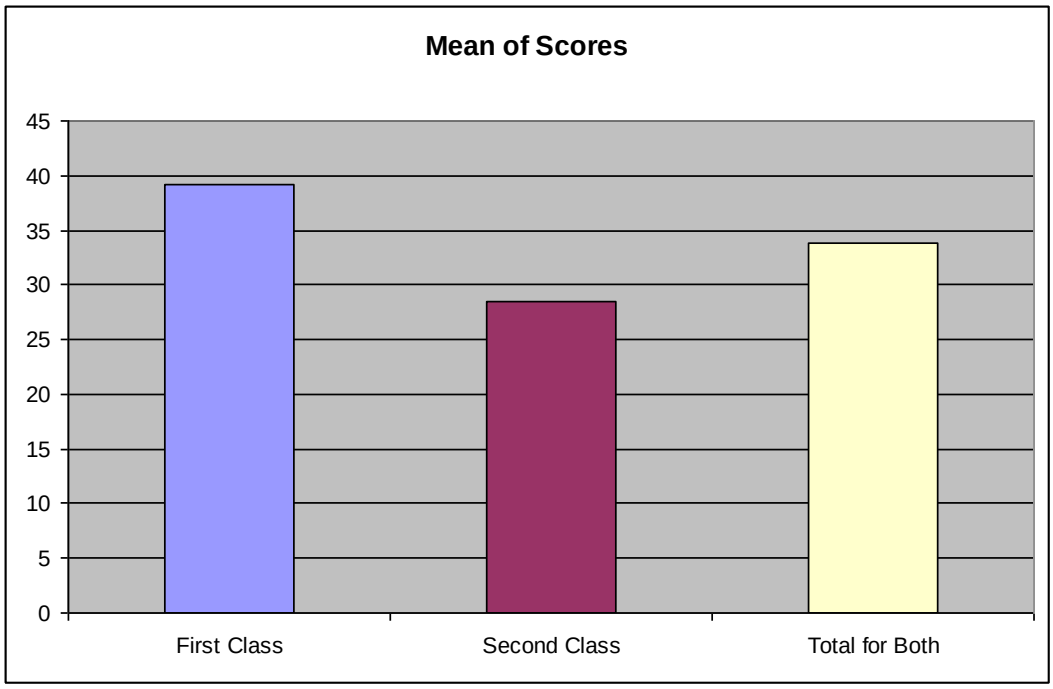

Figure 5. Graphical representation of mean of scores from pre-test.

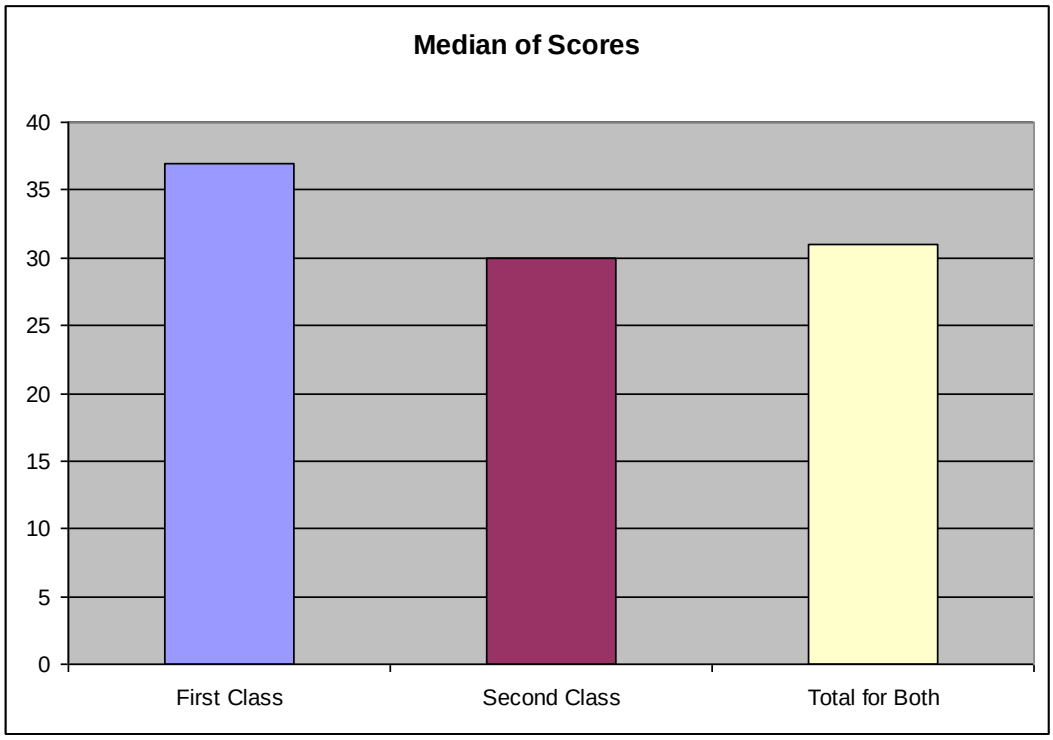

Figure 6. Graphical representation of median of scores from pre-test.

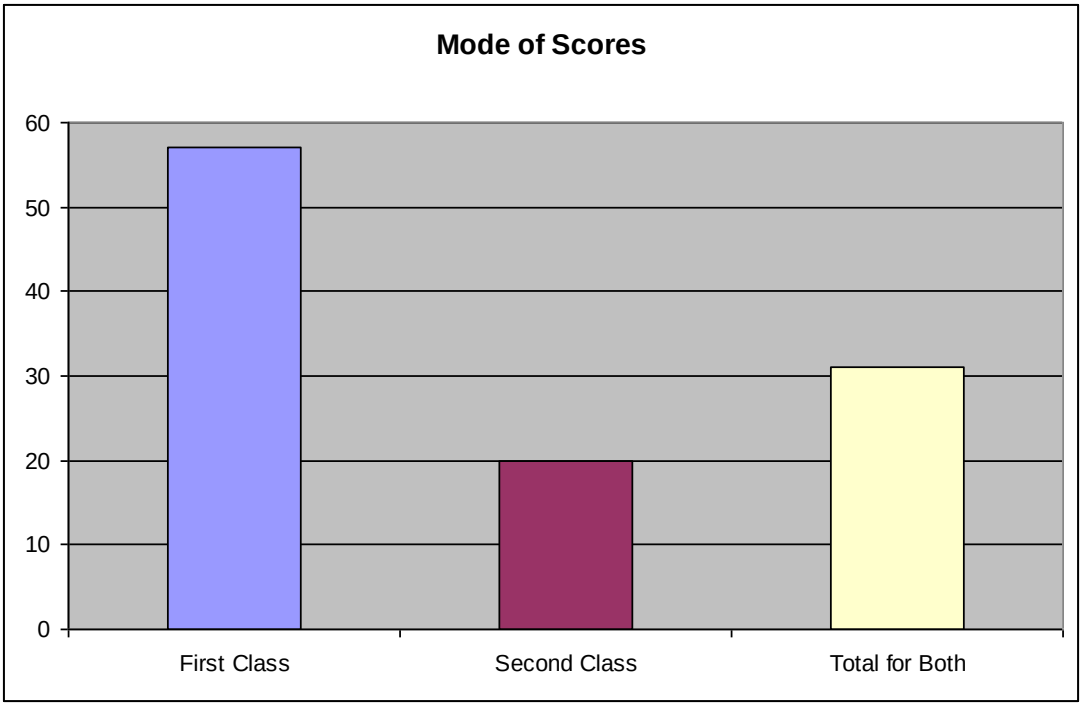

Figure 7. Graphical representation of mode of scores from pre-test.

The above figures summarize the data from the pre-test on the geometry unit. Information is given for each class and then as a total for the two classes together. The average for the first class, the control group, is higher than for the second class, the experimental group. Based on these pre-tests, and the results on the vocabulary section, in particular, I realized that the students definitely needed greater instruction in vocabulary.

Post-test Results

	First Class	Second Class	Total
Mean	83	80	82
Median	88	79	85
Mode	94	77	77

Figure 8. Post-test results.

On the post-test, the experimental group did not perform as well, overall, as the control group (see Figure 8). The average for the control group went from 39 on the pre-test to 83 on the post-test. The improvement for the experimental group was from a 29 on the pre-test to 80 on the

post-test. This is discouraging because it shows that the extra time spent on vocabulary and improving the students' understanding of mathematical language does not translate into better test scores, necessarily. But, it is important to note that the extra time spent covering the vocabulary does not appear to have hurt the scores of the experimental group. The scores are similar to those scores of the control group. Post-test information is presented in Figures 8, 9, 10, and 11. Vocabulary sheets are contained in Appendices A and B.

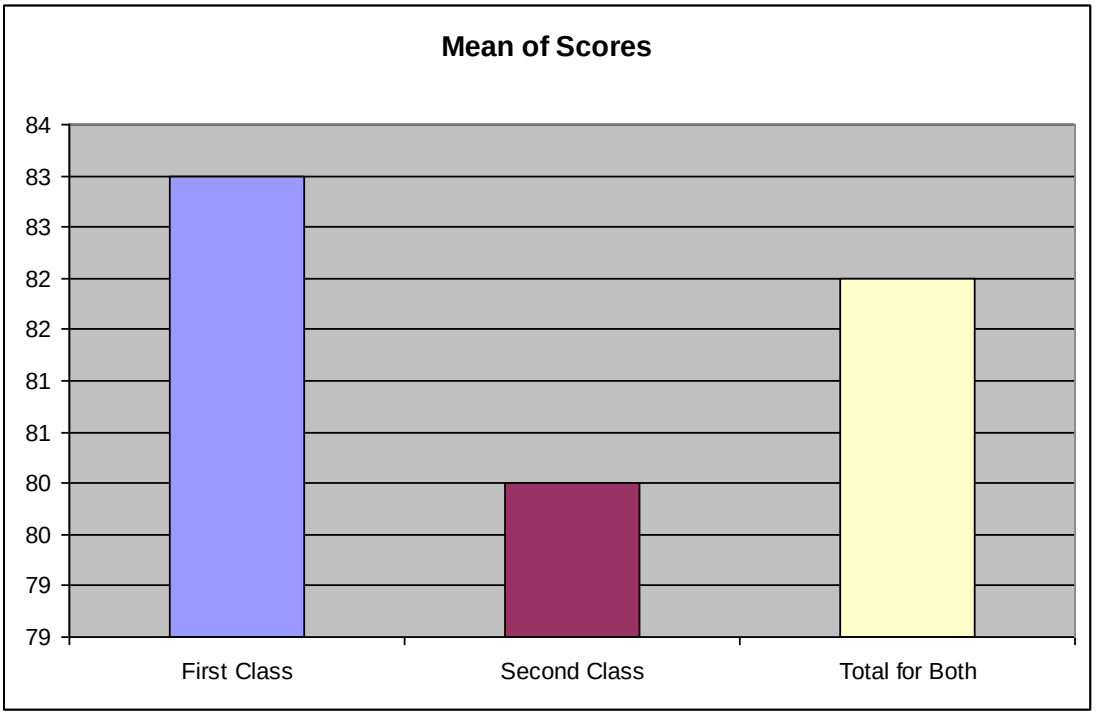

Figure 9. Graphical representation of mean of scores from post-test.

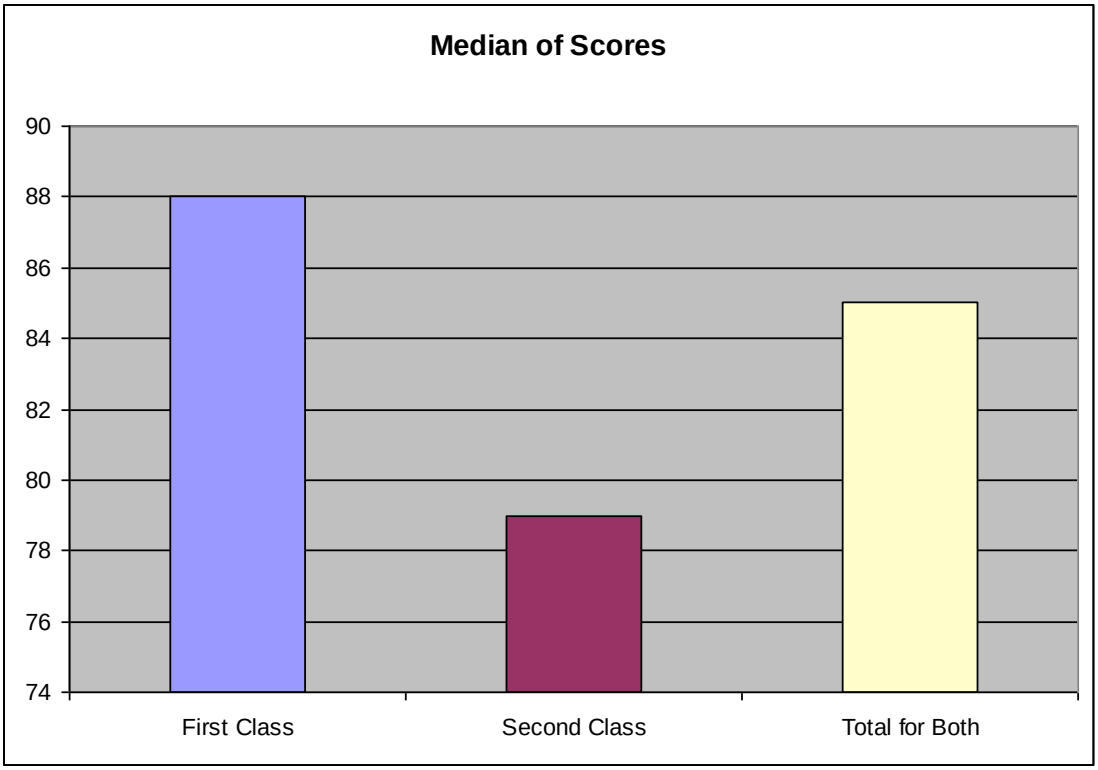

Figure 10. Graphical representation of median of scores from post-test.

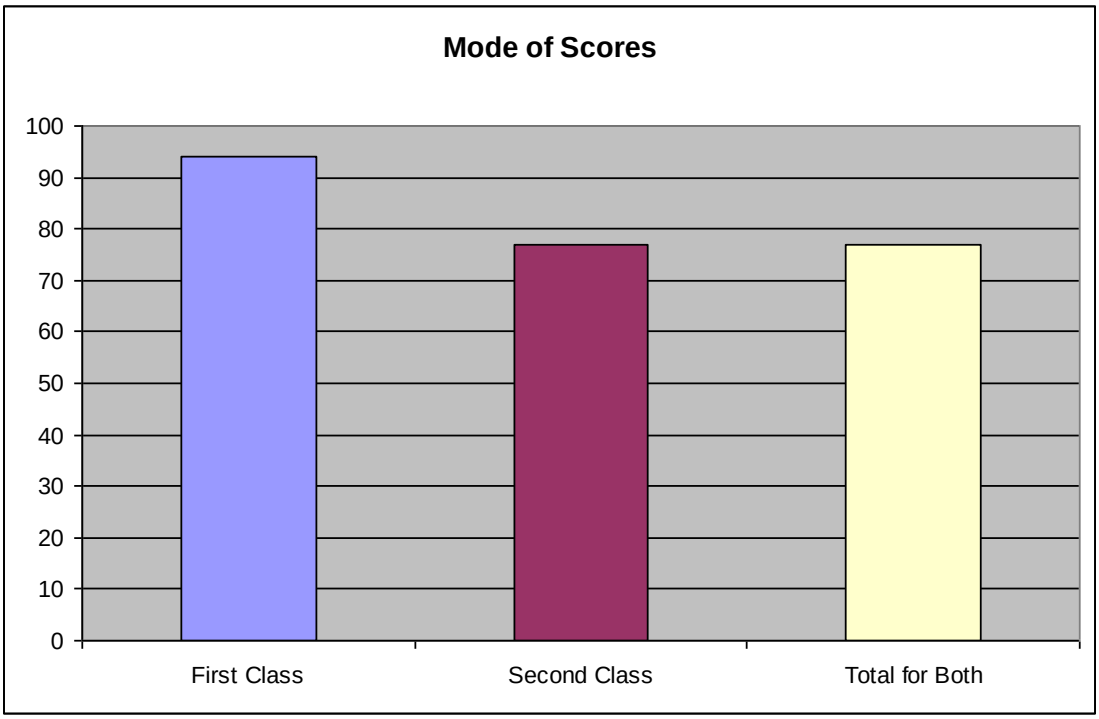

Figure 11. Graphical representation of mode of scores from post-test.

Conclusions and Recommendations

Based on the results, I cannot definitely say that there was either a positive or a negative impact on the students' grades, based on the instruction given. I can say that the daily ritual of reviewing and covering new vocabulary began to interest the students toward the end of the study. As they began to recall the terms and meanings more easily, they became more engaged in the discussion process. This is helped, in part, by the age of the respondents.

The National Council of Teachers of Mathematics (NCTM) recognizes the need for students, at all ages, to become more capable with math language. Implementation in every mathematics classroom would bring us one step closer to the goal of the National Council of Teachers of Mathematics that students should be able to have the ability to communicate with their teachers and peers in the subject of math in a succinct manner. Students should be able to "use the language of mathematics to express mathematical ideas precisely" (NCTM, 2000, ¶ 3).

A major step could be taken toward implementation in every classroom of this or a similar strategy if there was professional development dedicated to this for mathematics teachers. Mathematics teachers should be encouraged to attend NCTM meetings. Specialists should be brought in on a county-wide initiative to help polish the skills of veteran educators in building mathematics vocabulary. Individual schools should begin their own smaller-scale initiatives to invest in a similar project, much like the literacy initiatives that have been undertaken.

In my research on this problem, I have found no grant money available for the advancement of students using mathematics vocabulary in our schools. But, this would be an excellent idea for a school district to undertake as a grant proposal. More attention could be drawn to the problem if schools would become more involved in looking for a solution.

The use of technology in this area may be limited. There are web sites where one can find definitions about mathematics vocabulary, then participate in interactive activities to reinforce what has been learned. In general, students' interest will increase when they are able to utilize a computer for lessons. PowerPoint presentations could also be used to present material in a variety of ways to attempt to hold student interest.

It is my belief that this action should be implemented in every classroom because it is of vital importance that the students in mathematics classes be capable of discussing, in intelligent terms, what they are studying. The results of this project may have been negatively impacted by the short term of the project. If this were implemented in a classroom for a longer amount of time, I still believe that there would be an improvement in scores seen.

These results are reliable and valid because the information was gathered through multiple sources. I used teacher observation, student responses during discussions, and statistics collected through testing. This strategy could be implemented in other classrooms, at any level of math instruction. With an improved understanding of math terms, and subsequent higher test scores, the students will benefit. There is no anticipated harm that could be caused to the students through this process. In fact, in cases where it is successful, the classes could benefit.

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Appendix A

Math Vocabulary Glossary Page

The following are words covered in class, for each one write a definition in your own words:

Point

Ray

Line Segment

Line

Math Vocabulary Glossary Page

The following are words covered in class, for each one write a definition in your own words:

Line

Parallel

Perpendicular

Intersecting

Angle

Math Vocabulary Glossary Page

The following are words covered in class, for each one write a definition in your own words:

Angle

Vertex

Acute Angle

Obtuse Angle

Right Angle

Math Vocabulary Glossary Page

The following are words covered in class, for each one write a definition in your own words:

Angle

Congruent

Triangle

Equilateral

Isosceles

Scalene

Appendix B

In-Class Math Vocabulary Page

Write a definition for each word. On the line labeled “What I think” write what you think it means using any source available to you in the class. You may work together but keep the noise to a minimum in consideration of your fellow classmates. Leave the “What I know” lines blank at this time.

Point

What I think_____
_____
What I know_____
_____

Ray

What I think_____
_____
What I know_____
_____

Line Segment

What I think_____
_____
What I know_____
_____

Line

What I think_____
_____
What I know_____
_____

In-Class Math Vocabulary Page

Write a definition for each word. On the line labeled “What I think” write what you think it means using any source available to you in the class. You may work together but keep the noise to a minimum in consideration of your fellow classmates. Leave the “What I know” lines blank at this time.

Line

What I think_____
_____
What I know_____
_____

Parallel

What I think_____
_____
What I know_____
_____

Perpendicular

What I think_____
_____
What I know_____
_____

Intersecting

What I think_____
_____
What I know_____
_____

Angle

What I think_____
_____
What I know_____
_____

In-Class Math Vocabulary Page

Write a definition for each word. On the line labeled “What I think” write what you think it means using any source available to you in the class. You may work together but keep the noise to a minimum in consideration of your fellow classmates. Leave the “What I know” lines blank at this time.

Angle

What I think_____
_____
What I know_____
_____

Vertex

What I think_____
_____
What I know_____
_____

Acute Angle

What I think_____
_____
What I know_____
_____

Obtuse Angle

What I think_____
_____
What I know_____
_____

Right Angle

What I think_____
_____
What I know_____
_____

In-Class Math Vocabulary Page

Name Date

Write a definition for each word. On the line labeled “What I think” write what you think it means using any source available to you in the class. You may work together but keep the noise to a minimum in consideration of your fellow classmates. Leave the “What I know” lines blank at this time.

Angle

What I think_____
_____
What I know_____
_____

Congruent

What I think_____
_____
What I know_____
_____

Triangle

What I think_____
_____
What I know_____
_____

In-Class Math Vocabulary Page

Write a definition for each word. On the line labeled “What I think” write what you think it means using any source available to you in the class. You may work together but keep the noise to a minimum in consideration of your fellow classmates. Leave the “What I know” lines blank at this time.

Triangle

What I think_____
_____
What I know_____
_____

Equilateral Triangle

What I think_____
_____
What I know_____
_____

Isosceles Triangle

What I think_____
_____
What I know_____
_____

Scalene Triangle

What I think_____
_____
What I know_____
_____

The Effects of the Daily Performance of the Brain Dance on Students' Scores on a Standardized Measure of Reading Comprehension

Heather Brown

Education 590, Fall 2006

The University of Tennessee at Chattanooga

The Institutional Review Board of the University of Tennessee at Chattanooga (FWA004149) has approved this research project #06-193.

Introduction to the Problem

Across the U.S. and abroad, there is a new trend emerging in education: the BrainDance. Developed by educator Anne Green-Gilbert, the BrainDance is made up of a series of eight movement patterns based on those an infant goes through during the first year of life. It begins with breathing and moves through cross-lateral motions like crawling and walking (2006a, 2006b). Green-Gilbert claims that if infants are not given enough time to cycle through these movement patterns naturally, gaps can occur in their neurological developments, which can lead to learning disabilities, behavior problems, memory and attention disorders, and even sleep disorders later in life (2006a). Green-Gilbert goes on to explain that most children and adults, today, did not have adequate time to explore this movement process naturally due to the increased use of child seats, car seats, and strollers, in the last several decades. According to Green-Gilbert, spending so much time strapped into these seats inhibits the natural developmental cycle. Gaps can also occur due to birth trauma or illness. Green-Gilbert believes that cycling through the eight patterns of the BrainDance, on a daily basis, will fill in the gaps that occurred in infancy and repattern the central nervous systems in older children and adults alike (2006b). She claims that taking 5 minutes to perform the BrainDance, every day, can help increase focus, curb behavior problems, and improve reading comprehension (2006a, 2006b).

Green-Gilbert is experiencing great results, first-hand. She is in high demand as a lecturer and a presenter, and has trained thousands of teachers across the U.S. and abroad to use the BrainDance in their classrooms. Currently, BrainDance is being used at several public and private schools in the Chattanooga area, to the acclaim of classroom teachers, parents, and students, alike. However, there has been little empirical research conducted to support the claims that Green-Gilbert makes and to back up the observations of these students and teachers. As a

result, some educators are unwilling to try the BrainDance in their classrooms, and could be missing out on an incredible tool to enhance student learning.

As a future English teacher, I am especially interested in Green-Gilbert's claims regarding reading comprehension. She says that two of the BrainDance patterns, body-side movements (moving just the right arm and leg while keeping the left side stationary), and cross lateral movements (moving the right arm across the center line of the body to the left leg), develop the horizontal and vertical eye tracking essential for reading (2006b). In addition, Green-Gilbert claims that cycling through the BrainDance will increase memory and attention, both fundamental to reading comprehension (2006b). In this study, I will put these claims to the test. I will examine whether the performance of the BrainDance on a daily basis, has any impact on students' scores on a standardized measure of reading comprehension, the *Nelson-Denny Reading Test* (Brown, Nelson, & Denny, 1973).

Review of Literature

Although the BrainDance has not been studied empirically, to date, there has been increased interest in, and research on, the link between physical activity and academic performance. One of the most comprehensive studies in this area was conducted by the California Department of Education (CDE) in 2002. The CDE study individually matched the achievement test scores of 954,000 students in Grades 5, 7, and 9, with the results of a state-mandated physical fitness test, known as the Fitnessgram. The study found a strong correlation between level of physical fitness and academic achievement at all three grade levels tested. Students who met the minimum requirements in three of the six areas assessed by the Fitnessgram (which include cardiovascular endurance, body composition, abdominal strength and endurance, trunk strength and flexibility, upper body strength and endurance, and overall

flexibility) showed the greatest gains in academic achievement (National Association for Sport & Physical Education, 2002).

In a more recent study, conducted by researchers from Michigan State University and Grand Valley State University in 2006, findings were similar. This study tracked 214 sixth graders for one academic year, and examined the relationship between activity level and academic performance, as measured by end of semester grades in core classes including, reading, mathematics, science, and social studies. Results indicated that, while moderate physical activity (including participation in physical education class) had no impact on academic performance, students who took part in more vigorous activities (including organized sports and non-organized after school activities like skateboarding) did perform better academically (by almost 10 percent) than those students who engaged in little or no vigorous activity (Coe, Pivarnik, Womack, Reeves, & Malina, 2006). Based on these results, the authors of the study suggest that there may be a threshold of physical intensity which must be reached in order to bring about changes in the child which contribute to increased academic achievement (Coe et al., 2006). This seems to connect to the CDE study's findings that the most physically fit students are the ones who perform best on measures of academic achievement. Coe et al., however, also recognize a potential confounding variable. They note that children of higher socioeconomic status tend to have a higher rate of participation in organized sports and tend to engage in higher levels of physical activity than their peers. In addition, it has been found that children from higher socioeconomic backgrounds perform better academically than those from poorer homes (Coe et al., 2006). The socioeconomic backgrounds of the 214 participants in this study were not available for analysis.

There have been numerous studies conducted on the effects of physical activity and cognitive functioning, however, which would seem to support the correlations in the CDE and Coe et al. studies. Leslie J. Scheuer and Debby Mitchell report, in their review of the current literature, that the improved brain attributes which have been positively associated with regular physical activity include, "increased cerebral blood flow, changes in hormone levels, enhanced nutrient intake, and greater arousal" (2004, ¶ 4). Scheuer and Mitchell led me to Andrew Cocke's article, entitled, "Brain May Also Pump up From Workout," which examines three studies, presented at the Society for Neuroscience 2002 annual meeting, confirming that the brain benefits from regular physical activity.

In this article, Cocke describes a Japanese study which examined the effects of regular exercise on working memory. At Nihon Fukushi University in Aichi, Japan, researchers divided 14 subjects into two groups. Both the experimental and control groups took a cognitive test which measured working memory at the start of the experiment. Following the test, one group of subjects began a regular exercise program; they jogged for 30 minutes, three times per week. At the end of 12 weeks, both the joggers and non joggers took the memory test again. According to Cocke's report, the jogging subjects scored nearly 30 percent higher on the post-test than the sedentary subjects. Head researcher of the study, Dr. Kisou Kubota, explains those results; he is quoted as saying, "Jogging stimulates the prefrontal areas of the brain," those areas involved in memory and learning (2002, ¶ 1).

Cocke also describes a study conducted at UCLA, which examined the effects of regular, voluntary exercise on levels of Brain-Derived Neurotrophic Factor (BDNF), a protein that nourishes neutrons and helps maintain their health and regular function. This study measured the levels of BDNF present in the hippocampus areas of the brains of rats engaged in consistent

physical exercise, and compared them to the hippocampus BDNF levels of sedentary rats. Researchers found that BDNF levels were higher in those rats engaged in regular exercise, than in those who were sedentary; and these same, active rats scored higher on tests and learned faster than their sedentary counterparts (2002).

Eric Jensen, author of *Teaching With the Brain in Mind,* cites a similar study. He writes, "We know exercise fuels the brain with oxygen, but it also feeds it neurotropins (high nutrient food) to enhance growth and greater connections between neurons" (1998, p. 85-86). He goes on to describe a study conducted at Scripps College, in Claremont, California, which divided 124 subjects according to whether they exercised regularly or not. Those who exercised for 75 minutes per week demonstrated quicker reactions, thought better, and remembered more on subsequent tests, than did their peers who did not exercise regularly.

In his book, Jensen describes the first real evidence of a link between the mind and body. It began with the work of Alan and Henrietta Liner, neuroscientists from Stanford University, who discovered that the cerebellum, the area of the brain known for its role in balance, posture, coordination, and movement, contains over half the brain's neurons, though it makes up just one-tenth of the brain's volume. The Liners also discovered that those neurons not only feed information from the cortex to the cerebellum, as was previously believed, but that they also feed information from the cerebellum back to the cortex. The fact that these connections are so powerfully distributed in both directions indicated that movement is tied to cognitive functioning (Jensen, 1998). This discovery laid the groundwork for other research, which eventually "redrew the cognitive map" (Jensen, 1998, p. 83).

Jensen cites the findings of several of the studies inspired by the Liners' work, and explains that the areas of the brain known to play a role in cognitive processes, such as memory,

attention, spatial perception, problem solving, planning, and complex decision making, are stimulated when subjects engage in novel, physical activities. Jensen writes, "In the same way that exercise shapes up the muscles, hearts, lungs, and bones, it also strengthens the basal ganglia, cerebellum, and corpus callosum, all key areas of the brain" (Jensen, 1998, p. 85).

Based on the research he has assembled, Jensen makes several recommendations about incorporating movement in the academic classroom. Jensen (1998) writes,

> Today's brain, mind, and body research establishes significant links between movement and learning. Educators ought to be purposeful about integrating movement activities into everyday learning. This includes more than hands-on activities. It means daily stretching, walks, dance, theater, drama, seat-changing, energizers, and physical education. (p. 88)

Jensen suggests that teachers in all content areas, at all grade levels, include movement in their classes, on a daily basis, to stimulate their students' brains and promote learning. He suggests that teachers have students stretch at the beginning of class each day, or anytime they seem to "need more oxygen" (Jensen, p. 89). He also recommends that teachers learn and use cross-lateral movements such as marching in place while touching the opposite knee, or patting oneself on the opposite shoulder, to forge stronger connections between the two hemispheres of the brain. In addition, Jensen touches on the importance of activities which stimulate the inner ear and force the body to balance itself, like spinning in place or standing on one leg.

> Jensen (1998) writes, Certain spinning activities [lead] to alertness, attention, and relaxation in the classroom. Students who tip back on the back two legs of their chairs in class are often stimulating their brains with a rocking, vestibular-

> activating motion. While [this] is an unsafe activity, it happens to be good for the brain. (p. 87)

Jensen goes on to say that educators should give students the opportunity to move safely in this way throughout the day. He writes, "Brain-compatible learning means that educators should weave math, movement, geography, social skills, role play, science, and physical education together" (Jensen, 1998, p. 88).

Based on Jensen's research and recommendations, as well as other mind-body studies, Anne Green-Gilbert's BrainDance serves as a tool that teachers can use to incorporate movement into their classrooms and give their students the opportunity to move safely. Given the abundant evidence cited here, and in my primary sources, supporting the link between physical activity and cognitive functioning, I believe that there is merit to Green-Gilbert's claims that daily performance of the BrainDance "may correct flaws in a person's perceptual process and reorganize the central nervous system to develop better proprioception, balance, attention, memory, eye-tracking, behavior, sensory integration, and motor skills" (2006b, ¶ 2). I believe BrainDance may be a legitimate means to improve students' reading comprehension ability. I hope this research will give it the empirical basis it needs to become part of mainstream educational practice.

Data Collection and Results

Population

This research was carried out in a ninth-grade English class composed of 19 students, 11 girls and 8 boys, at a Hamilton County magnet school. The school population is heterogeneously mixed in terms of race and socioeconomic status. Fifty-nine percent of the student body is Caucasian; 37 percent is African-American, 3 percent is Asian, and 1 percent is Hispanic. Fifteen

percent of the student body is considered economically disadvantaged. The population of the ninth grade class is representative of the population of the school, as a whole. It is also heterogeneously mixed in terms of academic ability. Two of the nineteen students are gifted; one student has an IEP for reading comprehension difficulties; three students struggle with reading, writing, and attention, but do not have IEPs; and 1 student is repeating the course.

Three of the 19 students did not return parental consent and/or student assent forms and did not participate in the study. In addition, three students were absent on either the pre-test date or the post-test date, and alternative test dates could not be arranged. As a result, 13 students participated fully, taking both the pre- and post-tests.

Also, it was intended that another ninth-grade English class would serve as a control group, taking the pre- and post-tests without participating in the BrainDance; however, only four students in that class returned consent and/or assent forms, even after being reminded and given additional time to return them. Due to time constraints, other arrangements could not be made to assemble a control group.

Procedure

I attended two workshops on BrainDance, including one that was led by Anne Green-Gilbert, before the research project began. Implementation of the BrainDance during the research project was patterned directly after what was done in the workshops and set forth in Green-Gilbert's latest book, *Brain-Compatible Dance Education* (2006).

Before students were introduced to the BrainDance, the reading comprehension portion of Form C of the *Nelson-Denny Reading Test* was administered as a pre-test. After the pre-test, students were led through the eight movement patterns of the BrainDance and given instructions as follows:

1. Breath—Take four to five deep breaths in through the nose and out through the mouth.
2. Tactile—Lightly tap your whole body with the hands, beginning with the top of the head and working all the way down to the feet. Squeeze your head, neck, arms, and legs strongly; slap your head, neck, arms, and legs, sharply; and brush your whole body smoothly.
3. Core-Distal—Hug your arms and legs into your body, tuck your head in, and take up as little space as possible. Stretch your entire body and take up as much space as possible. Repeat this movement several times.
4. Head-Tail—Round your back pulling the belly-button into the spine and forming a "C" shape; arch your back stretching out the front of the body and opening the chest to the ceiling. Repeat this movement several times.
5. Upper-Lower—Ground the lower half of your body by pressing your feet into the floor, and move just the upper body. Ground the upper half and move just your hips, legs, and feet.
6. Body-Side—Move the left side of your body while keeping the right side still; keep the left side still and move the right side.
7. Cross-Lateral—Move your right arm and left leg simultaneously and your left arm and right leg simultaneously (touch your right knee to your left elbow, left hand to right foot, etc.).
8. Vestibular—Choose a movement that takes you off balance and makes you dizzy. Swing your upper body forward and backward and side-to-side, shake your head

rapidly, or stand beside your chair and practice balancing on one foot with your eyes closed. Take three to four deep breaths to center yourself after spinning.

During the experimental phase, students performed the BrainDance while seated in chairs in the classroom. I modeled it for them and performed it with them on a daily basis. We spent 5 to 10 minutes at the beginning of class each day cycling through the eight movement patterns. After a period of 2 weeks, the reading comprehension portion of Form D of the *Nelson-Denny* was given as a post-test. Pre-test raw scores were compared to post-test raw scores to see if any meaningful gain occurred.

Results

I found that 8 of the 13 students tested showed improvement on the post-test. Some scores improved by as much as 6 to 10 points. One student's score stayed the same, and four scores decreased by as much as three points. The class average increased from a raw score of 16 out of 36 possible points on the pre-test, to 18 out of 36 possible points on the post-test. See Figures 1 and 2.

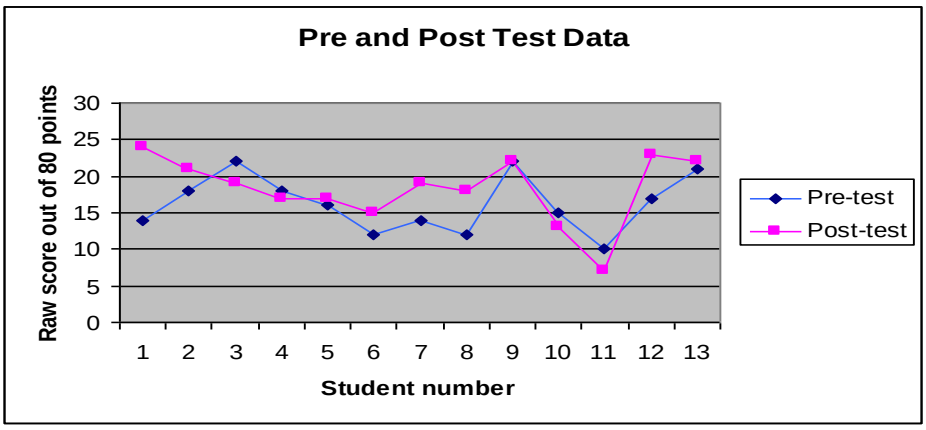

Figure 1. Comparison of pre-test and post-test data by student.

Student #	Pre-test Raw Score	Post-test Raw Score	Change
1	14	24	10
2	18	21	3
3	22	19	-3
4	18	17	-1
5	16	17	1
6	12	15	3
7	14	19	5
8	12	18	6
9	22	22	0
10	15	13	-2
11	10	7	-3
12	17	23	6
13	21	22	1
Average	16	18	2

Figure 2. Pre-test and post-test data by student, including class averages.

Conclusion and Recommendations

Based on the results obtained in this experiment, no generalizations can be made concerning the efficacy of the BrainDance. Results were mixed; and without a control group, the increase in the scores of those eight students who did show improvement on the post-test cannot be attributed to performance of the BrainDance, alone. While the *Nelson-Denny Reading Test* is standardized, and has been tested for internal reliability and validity, it is possible that the students who performed better on the post-test did so because they had the experience of taking the pre-test, and were familiar with the format and the time constraints.

In addition, the time I had to carry out this project was limited. I had only 2 weeks between the pre-test and post-test to perform BrainDance with the students. I believe it may take more time, at least 4 to 6 weeks of performing BrainDance daily, to see any kind of significant effects.

Based on the current research on the links between physical activity and both academic performance and cognitive functioning, I believe further research on the effects of performing

the BrainDance is warranted. That research should be conducted with a larger sample and a control group to ensure that the results have reliability and validity. In addition, the study should take place over a longer period of time, for example, an entire semester or academic year.

For those educators who want to know more about the BrainDance, and who are interested in pursing further research in this area, Anne Green-Gilbert's Web site, http://www.creativedance.org/, is a great resource. Her books, and instructional videos and DVDs, are available for purchase online. It is Green-Gilbert's premise that all classroom teachers are capable of using the BrainDance in their classrooms, and that it does not require special training in movement or dance. Reading her latest book, *Brain-Compatible Dance Education*, or watching one of the videos, should prepare a classroom teacher to incorporate the BrainDance into his or her classroom routine. Anne Green-Gilbert also travels nationwide, conducting workshops on BrainDance, and offers workshops throughout the year at her studio in Seattle, Washington. In Chattanooga, workshops and classes on BrainDance are offered at Barking Legs Theater on an ongoing basis. More information is available at the Web site (http://www.barkinglegs.org/Dance/index.html).

In terms of funding for future research, teacher-researcher grants are available through the National Council of Teachers of English, as well as other professional organizations. In addition, grants for this type of research may be available through arts advocacy organizations such as Allied Arts of Greater Chattanooga, and the National Endowment for the Arts.

As it stands, teachers are getting great, first-hand, observational results with BrainDance; and related research indicates that there is, in fact, a strong mind-body connection. I have to conclude that there is something to Green-Gilbert's claims. Though the results of this study did not confirm them, I am excited about the possibility that future research will.

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Do Female Students Perceive Mathematics Differently Than Male Students?

Jonathan Edwards

Education 590, Fall 2006

The University of Tennessee at Chattanooga

The Institutional Review Board of the University of Tennessee at Chattanooga (FWA004149) has approved this research project #06-145.

Introduction to the Problem

A great degree of interest has been generated, in recent years, regarding the role of gender in mathematical education. Many scholars are concerned that not enough females are entering fields such as engineering that rely heavily on mathematical skills. While some claim that females simply have less interest in such areas of study, others believe more can be done in middle school and high school to encourage more women to pursue careers that traditionally have been male-dominated. Are there ways mathematical education for girls can be improved? Could using small groups help?

Review of Literature

An 11 % gap in mathematical performance, related to gender, was found by researchers in the late 1990s (Campbell & Beaudry, 1998). Furthermore, it has been determined that gender directly predicts students' choices of careers (O'Brien, Kopala, & Martinez-Pons, 1999).

Although there is a gap based on gender on the SAT-M, the mathematics portion of the SAT, it appears to be decreasing (Rebhorn & Miles, 1999). Linda Levi suggests some practical ways the mathematical classroom can be improved, such as providing equal opportunity and making sure boys and girls have the same opportunity (Levi, 2000).

Ethington (1992), in her research, concludes that the greatest factor determining the performance of male and female students in mathematics is previous success. Other researchers concur with her findings (e.g., Ma & Xu, 2004; Fennema & Tartre, 1995). Ethington also concluded that, when females receive less help from their families, stereotype mathematics as a male domain less, and perceive mathematics as less difficult, they are more likely to succeed in the subject (Ethington, 1992). Tartre and Fennema (1995) also concluded that confidence in learning mathematics is the affective variable which is a great predictor of mathematics

achievement, that males stereotype mathematics as a male domain more than females, and that spatial visualization and verbal skills are related to success in mathematics (Tartre & Fennema, 1995).

In some cases, female students demonstrate more positive attitudes toward mathematics than male students. A study of Turkish college students found that, in their freshman year, female students were more positive in their attitudes toward mathematics than males, but after 2 years at the university, the differences in attitude disappeared (Aksu, 1991).

The research conducted at the university indicated that, over the course of 2 years, male students enjoyed math more, and felt more motivated to do well in math. However, female students enjoyed math less and felt less motivated to do well in the subject. Male students also experienced more freedom from fear, while female students experienced less freedom from fear, after 2 years. Both male and female students felt math was more important after 2 years at the university than they did before they began their studies.

Clearly, after 2 years in the university's department of mathematics, female students no longer had more positive attitudes than male students. In fact, males had slightly better attitudes than females.

Cross-cultural studies have been conducted in hopes that they would prove or disprove theories of gender differences in cognition. Researchers determined that, while gaps existed between males and females in the U.S., the gaps were insignificant in China (Byrnes, Hong, & Xing, 1997). Researchers believe that examinations for entrance may have something to do with the better performance of female students in China. Chinese students must take entrance examinations to attend high school, while American students do not. Chinese students who perform extremely well are admitted to 'elite' high schools. Furthermore, Chinese students may

have a greater incentive to perform well because of standardized tests which grant them entrance into Chinese universities. In the U.S., a low SAT score will prevent a student from attending a prestigious university, but 40% of all Americans attend college after high school because they can still be admitted to a less prestigious university. In China, entrance to college is much more limited, and only 5% of students attend college after high school. Therefore, students have a greater incentive to perform better on standardized tests. Perhaps this pressure has caused both male and female students to work harder and perfect their mathematical skills.

Other researchers found an indirect relationship between girls' mothers' education and girls' performance (Campbell & Beaudry, 1998). It was also discovered that girls' mathematical self-concept is unstable (Campbell & Beaudry, 1998).

An interesting question this study seeks to answer is, "If Females are placed in small groups with other females, will they perform better than they do alone?" Researchers do not seem to have reached a consensus on this question. In a study of 56 female students, from two single-gender schools and two coeducational schools, Shmurak (1998) did not find any differences between the schools. In a paper presented at the Annual Meeting of the American Educational Research Association, Gilson (1999), found coeducational schools somewhat helpful for girls in the seventh grade, and single-gender schools helpful for girls in the eighth grade. Though the research is somewhat inconclusive, perhaps this study will be productive in answering the question.

Data Collection and Results

Questions

The general question this project and paper will address is, "Do females perceive mathematics differently than males?" More specific questions stemming from this question are

the following: “Do females experience more anxiety than males when encountering difficult word problems?” “If females are placed in small groups with other females (groups of three or four students) to work on problems, will they perform better than they do alone?”

Participants

The subjects of the study will be Hamilton County middle school students. They will be sixth-, seventh-, or eighth- grade boys and girls between the ages of 12 and 14.

Method

The variables for this project will be the number of students, and the types of tests administered. The content of the quizzes was exponents and calculating the surface area of right solids.

The subjects will consist of students from two classes. In the first class, students will serve as the control group. A questionnaire will be given to determine boys’ and girls’ attitudes toward mathematics. Next, a pre-test will be administered, and a unit of mathematics will be taught. Finally, a test will be administered for the unit, and the girls’ scores will be compared with the boys’ scores.

Unlike the first class, the students in the second class will serve as the experimental group, and will be separated by gender and placed into groups of three or four. A questionnaire will be given to determine boys’ and girls’ attitudes toward mathematics. A pre-test will be administered, and then a unit of mathematics (the same unit taught to the control group) will be taught. A test will be administered and boys’ and girls’ scores will, again, be compared. Finally, a questionnaire will be given which will determine how much the girls enjoyed working with other girls and how much it affected their attitudes toward mathematics.

Data

The test data will be collected from the students' performance on assessments given after the unit is taught. Simple charts will compare boys' and girls' performance on the tests.

Analysis and Presentation of Data

The students' levels of anxiety and the students' attitudes toward mathematics will be compared to their scores on tests. Differences between boys and girls will be noted. Simple graphs will display attitude versus performance and anxiety versus performance.

Findings

The purpose of the second questionnaire was to determine how much boys and girls enjoyed working in groups. Boys' answers really were not very different from girls' answers. Almost all of the boys and girls preferred working in groups to working alone. Question 1 asks the following: "Did you enjoy working with other boys and girls more than working alone?" A typical response was, "I liked it more than working alone." Another student wrote, "I enjoyed it a lot because they were able to help me when I got stuck and [the teachers] were helping someone else."

Another interesting finding was that there was no profound difference in the way that boys and girls responded to Question 3. Question 3 asked, "Did you feel more comfortable when working in a group, or when working alone?" I thought that the vast majority of girls would respond in the affirmative while the vast majority of boys would be indifferent. However, both boys and girls preferred working in groups. While two boys preferred working alone, and one was indifferent, all of the girls but one preferred to work in groups. Considering there were 24 participants, this is not a great difference.

Almost all of the students felt that the groups were the right size. Responses such as, "I think it was just right," and "just the right size," were typical. Some students went so far as to

make statements supporting the number of students in the group. One female student said, “I think it was the right size. Three people is enough!” A male student said he liked groups of three because groups of that size did not yield an excessive number of opinions.

While the boys who took quiz 1 individually fared better, the girls did better working in groups. The average score for boys who took quiz 1 individually was 3.08 points out of a possible 5 points. The average score for girls who took quiz 1 individually was 2.79 points out of a possible 5 points. Girls in the second block who took the quiz in a group did extremely well, averaging 4.25 points, but boys who took the quiz in a group averaged only 3.00 points.

A trend became apparent in the performance of girls on the quizzes. Girls who worked in groups also performed better on quiz 3 than their counterparts who worked alone. The average score for girls working in groups on quiz 3 was 1.50 points out of a possible 2 points, compared to a score of 0.92 points for girls who worked on the quiz individually.

Although a trend became evident in the scores of girls, no trend was seen for boys. While boys fared better who worked on the first quiz individually, compared to their counterparts, boys who worked in groups on quiz 3 did better. Boys who worked on the quiz in groups averaged 1.75 points out of a possible 2 points, while boys who worked on quiz 3 alone scored only 1.43 points out of a possible 2 points. Results are summarized in Figures 1, 2, 3, and 4.

Student	Score (out of 5)	Student	Score (out of 5)
1	2	14	2
2	5	15	3
3	4	16	3
4	3	17	2
5	1	18	4
6	0	19	3
7	4	20	1
8	4	21	3
9	5	22	1
10	3	23	3
11	5	24	5
12	5		
13	3		

Figure 1. Results of quiz 1 for the control group, taken individually.

Group	Score (out of 5)
1	2
2	3
3	3
4	5
5	4
6	4
7	3
8	5

Figure 2. Results for quiz 1 for the experimental group, taken as a group.

Student	Score (out of 2)
1	2
2	1
3	1
4	1
5	1
6	0
7	0
8	2
9	2
10	0
11	1
12	2
13	2
14	0
15	2
16	2
17	2
18	0
19	0
20	0

Figure 3. Results for quiz 2 for the experimental group, taken individually.

Group	Score (out of 2)
1	2
2	2
3	1
4	2
5	2
6	2
7	1
8	1

Figure 4. Results for quiz 2 for the experimental group, taken as a group.

Conclusions and Recommendations

Clearly, through my research, I gained an elementary understanding of the way that working in groups helps both male and female students. Although this study was completed with a relatively small group of students, it does appear that working in groups helps female students more than male students. This discovery was foreseen. I was surprised to find that working in groups did not help boys more than it did.

Some generalizations can be made based on this study about the differences between male and female students. Although both male and female students enjoyed working in groups with others of their gender, the activity affects females' scores more directly than males' scores. The ability to work in a group seems to be of greater benefit to female students.

The consensus of most professional organizations on the subject of the role of gender in mathematical education is that it is very important to ensure that female students are not being overlooked.

Teachers who want to develop professionally might want to consider the benefits of grouping girls in groups of three or four. Although it might not be practical for every activity, it might be helpful for students to occasionally take quizzes in a group, especially if the teacher's goal in giving a quiz is to be informative, and not just assign a grade.

Grant money is probably available for research in this area, as it is available for many areas. At this time I am unaware of a source, however.

Technology was used in the manipulation of data for this research, and could be used in the future for further research. Microsoft Excel is an excellent tool that greatly simplifies the manipulation of data. It is an excellent program to use to record scores, find averages, etc.

The first suggestion I would give anyone who wished to continue or extend the study is to use a larger group of students. Perhaps a group of two or three times as many students would make the picture even more clear for the researcher.

Another suggestion is studying a variety of ages of students. Perhaps students could be studied from kindergarten through the 12^{th} grade. Ideally, the same group of students could be studied longitudinally over the entire 13 years they attended kindergarten through 12th grade.

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The Internet: Does it Stimulate Students' Learning?

Christopher A. Gehard

Education 590, Fall 2006

The University of Tennessee at Chattanooga

The Institutional Review Board of the University of Tennessee at Chattanooga (FWA004149) has approved this research project #06-174.

Introduction to the Problem

The use of technology has revolutionized the education world from top to bottom. Computers, word processors, the Internet, and educational software have changed the way we teach and learn.

This study will investigate the continued use of the Internet in education. The question to be addressed during this action research project is: Are students at the secondary level (8^{th} – 12^{th} grades) that have been raised in a technology-laden society still interested enough in the Internet for it to have a substantial advantage in the curriculum? The main issue being researched is whether or not a curriculum rich in Internet-based activities will stimulate students' learning beyond a traditional curriculum that has no emphasis on use of the Internet. This topic was selected because computers and technology are the way of the future. Students that are moving through our schools today will rely heavily upon computers to accomplish many tasks throughout their lives. It is the duty of educators to prepare students for the future whether it is through direct academic studies or life skills that will make them more productive adults.

The need for implementation of more technology into the classroom setting has become obvious to legislators and administrators throughout the federal and state levels. Presently, there are some technology grants that are helping this to become a reality but there needs to be more done to fund these sorts of projects. There is nowhere this fact is more obvious than in the science classroom. The resources available to the science educator on the Internet are amazing. That is why there needs to be a push to implement these resources into the science classroom. Young scientists, in this day and age, must have the ability to research, compile, and validate data from the Internet; this takes much needed practice that we could be giving students in the science classroom.

Review of Literature

When the Internet began to be utilized in schools, the discussion about whether or not the Internet was an appropriate educational tool was a hot topic. A 1996 study was conducted by the Tennessee Department of Education and the Appalachia Education Laboratory to investigate whether the Internet was being used by early adopters as a meaningful part of instructional practice. As of 1997, 89% of schools in Tennessee had access to the Internet but only 18% of teachers had any formal training on Internet use (Carter, Keyes, & Kusimo, 1998). This lack of training is most likely a substantial contributor to the lack of Internet usage in our schools today. More recent research by Williams (2000) suggests that, as of the year 2000, 99% of schools have some type of Internet access but only 13% of teachers require their students to use a Web browser in 10 or more lessons a year. These figures are evidence that teachers have not been using the Internet for in-class instruction.

Today, there is a different issue at hand. Spaid (2001) points out that high school students enter the science classroom having grown up in a technology-rich world of video games, personal computers, instant communication, and Internet access. For an emerging teacher to be effective, they need the skills to infuse technology into lesson plans in order to connect with technology-savvy children to improve their learning (Wise, 1997). Interesting insight on what students felt about how their teachers reacted to the increase of Internet usage can be gained from a 2002 study sponsored by the Pew Internet and American Life Project, authored by Douglas Levin and Sousan Arafeh where, 136 students from 36 different schools where surveyed. These students said that their schools and teachers have not yet recognized or responded to this fundamental shift toward more Internet usage by a greater percentage of their students. Also, when teachers and schools do react, it is often in ways that make it more difficult for the Internet

to be used effectively. In this survey, students were asked to relate both good and bad examples of Internet-based assignments given by their teachers. While most of the students had both good and bad examples, they said that, typically, these types of assignments were boring and/or poorly planned. Most students felt that, if these Internet activities were more relevant to their lives, it would significantly improve their attitude toward school and learning. Whether educators like it or not, the educational usage of the Internet and other relevant technologies is here to stay. The resources to create amazing, Internet-based education platforms are available to all educators. It would not be difficult for educators to make themselves much more effective in the classroom by taking advantage of these resources.

Another important reason for implementing the Internet into the classroom, as early as possible, is that the Internet, whether we like it or not, is the future of learning. Taking entire classes via the Internet is somewhat commonplace in today's education sector. A study conducted in 1995, by Laszlo and Castro, reported that students become totally absorbed in task engagement when an interactive learning environment exists. Also, in the conclusion of their study they noted that "tools used in Web-based learning have the potential to move students onto higher order thinking where they would be the entrepreneurs of learning – creating new information as opposed to simply digesting and storing information for later use in life." (Laszlo & Castro, 1995, p. 8) In 2000, Brown summarized the advantages of using the Internet for learning; these include the following: (a) a greater range of teaching and learning activities are possible; (b) greater collaboration amongst learners and teachers; (c) cultural diversity; (d) personalized instruction; (e) anytime, anywhere instruction; (f) higher level skills and cognitive thinking. While there are many advantages to implementing Internet-rich education, it takes a skilled and knowledgeable educator to use this tool to its full potential.

There are also disadvantages to using the Internet in education. As mentioned earlier, not all students are equally experienced or comfortable using the Internet. This could hold back students who otherwise would not have any problem learning the material. It is the job of an educator to make lessons easier for students to grasp, not more difficult. Also, while many homes have Internet connectivity, there are also many that do not. It would be unfair to assign homework that some students would not be able to complete at home due to a lack of Internet connectivity.

Data Collection and Results

Data Collection

Implementation of this action research project has taken place during my student teaching assignments at a high school and a middle school. No data collection was done at the high school because my IRB approval was not received. However, I did implement some Internet activities into the curriculum and informally got a pretty good response from the students. It seemed they enjoyed getting out of the classroom to go to the computer lab to use the computers.

To answer my question, I will use both qualitative and quantitative data collection methods. The majority of the data will be obtained through surveys, test results, and comparison with previous-year test grades. During my own classroom time, I will include an ample number of Internet-based activities. In the first week before implementation of the Internet-based activities, a student self-evaluation questionnaire will be issued. Many questions relating to the Internet and computers will be asked in this questionnaire. Questions will begin with a discussion of the student's home Internet usage, mostly the amount and purpose of usage. Next, students will be asked questions related to how they feel about Internet usage in school. These questions will include, but not be limited to the following:

- Do they feel they get enough computer time?
- Are their teachers using enough Web-based instruction?
- Do they enjoy using the Internet for school assignments?
- What do they feel is the greatest benefit they can gain from using the Internet?

The most significant information gained from this questionnaire will be whether Internet activities continue to interest them and stimulate their learning. An example of the student questionnaire is included in Appendix A. The survey is anonymous and only asks for the gender and class period. The format of this survey will use the Likert Scale. This type of questionnaire scale will give the researcher both quantitative and descriptive data.

The main body of this research project is to gauge the impact the Internet has on the learning of secondary school science students. To do this, different eighth-grade physical science classes were given different exposures to the Internet. For one group, Internet usage will be low or nonexistent. Lesson plans during this portion of the unit will be more traditionally-based with, lots of lecture and lab activities that do not rely on the Internet. This will not be a large departure from the current learning environment. Following the unit, a test will be administered to determine the students' understanding of the concepts in that unit. I do not expect to see a substantial change in the students' test scores.

The other group will be taught using substantially more Internet-based activities. This Internet-rich unit will be geared towards making the most of the instructional tools available on the Internet. The purpose of this is to determine if the Internet, when used in a stimulating and interesting way, helps students to obtain substantial gains in learning over traditional instruction. A unit test will be administered following this unit to asses the students learning, and comprehension of the material. The test scores from the two groups will be compared and

contrasted. Using this comparison, I will try to discern any noticeable change in scores. These different methods of instructional practices will take place for only this unit during my student teaching. Hopefully, a considerable difference will be evident between these two different practices. No groups will know that I am comparing their test scores, which will help to keep the amount of discussion outside of class to a minimum.

Results

This project took place in my eighth-grade physical science classes at a middle school in Hamilton County, TN. Out of a total of 82 students in my four sections, about 65 percent, or 53 students, took part in the study. The experimental group will be the 5th block students. There are a total of 22 students enrolled in this class. The reason these students where chosen over any other students is that they turned in the most parental permission slips out of any other class. From this point forward, the experimental group will be referred to as the study group. The rest of the classes will comprise the control groups; each block will represent its own control group so that the experimental group's data can be compared against three different sets of data, instead of one large set. This will give a better comparison to see where the experimental group fits into the three other groups. From this point forward in the paper, these control groups will be called Group A, Group B, and Group C.

There are a number of different types of data that must be collected during this project. The first type of data that must be collected and compiled is the survey results. This will give more information about the way today's students view the Internet and computers. Some very good information was gathered from the survey. The first thing the survey showed was that more students have computers and Internet access in the home than was originally expected. The survey showed that just over 77% of students surveyed had some type of Internet access outside

of school. This access was not necessarily at home, but sometimes at the home of a relative or friend. Figure 1 displays the breakdown of the different Internet access options most students have to them.

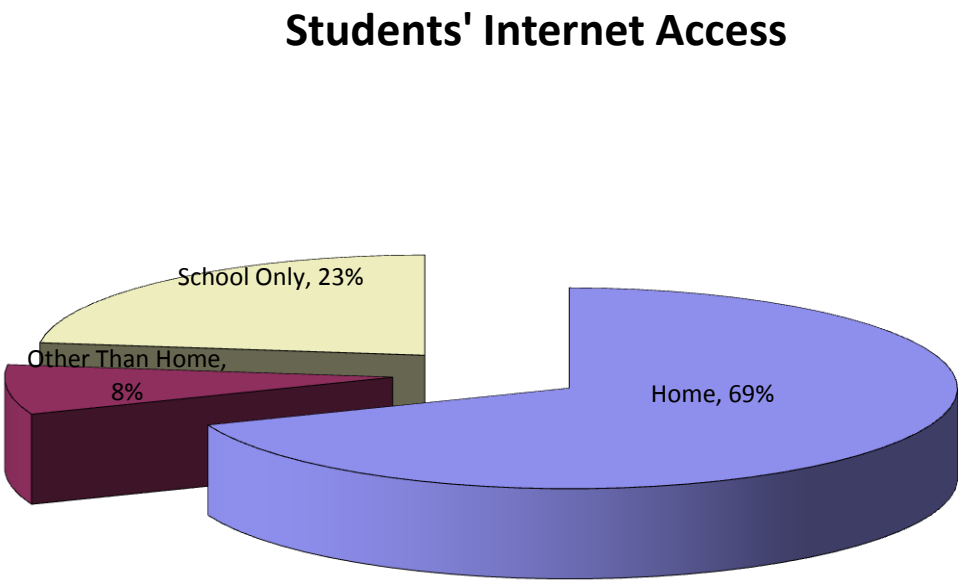

Figure 1. Pie chart representing students' Internet access.

Another interesting bit of information gained from the surveys is that 88% of the students said that they would like to see more Internet-based activities implemented into the curriculum. Overall, most of the students seemed to have a generally good attitude toward the Internet in the classroom setting.

Incorporating the Internet into the curriculum was more of a challenge than originally expected. The middle school does not have a computer lab that has open access to all classes.

The only computer lab in the building is specifically for the math lab. Also, I could not assign any homework that relied on the Internet because not every student had Internet access at home. Fortunately, the classroom had Internet access and a light box system that allowed me to project the screen of my laptop onto the wall. Many of the activities used during this study were interactive Web elements and WebQuests. This allowed the students to decide what was going to happen on the screen and give them more membership in the actual exercise.

Another assessment tool to determine whether or not the Internet has any effect on the learning of eighth-grade physical science students is a pre-test and post-test comparison. All four sections were given the same pre-test/post-test set in cooperation with my student teaching requirements. This is a good assessment tool because the test scores of the study group can be compared to three other sections of the same course giving a very good indication if their scores are truly higher than the rest of the students. The same test is given for both the pre-test and post-test. This way, there are no surprises and the test scores are truly accurate with one another. It is to be expected that the scores on the pre-test were not exceptional, and the scores across the four groups where rather poor. The study group got a score of 47.5% correct. Group A got a score of 45.2%, Group B got a score of 44.6% and Group C got a score of 49.1%. These rather poor tests score are due to the fact that these students have had very limited exposure to this material before the test. Therefore, you would expect the scores to be as low as they were. At the end of the unit, the exact same test was administered to all of the groups. As expected, test scores for the post-test showed an increase. The study group got a score of 79.2% correct. Of the control groups, Group C got the highest score. Groups C's score was 81.6%, 2.4 percentage points higher than the study group's score. The other control groups had the following test scores: Group A, 77.1%, and Group B, 78.2%. These test results are displayed in Figure 2.

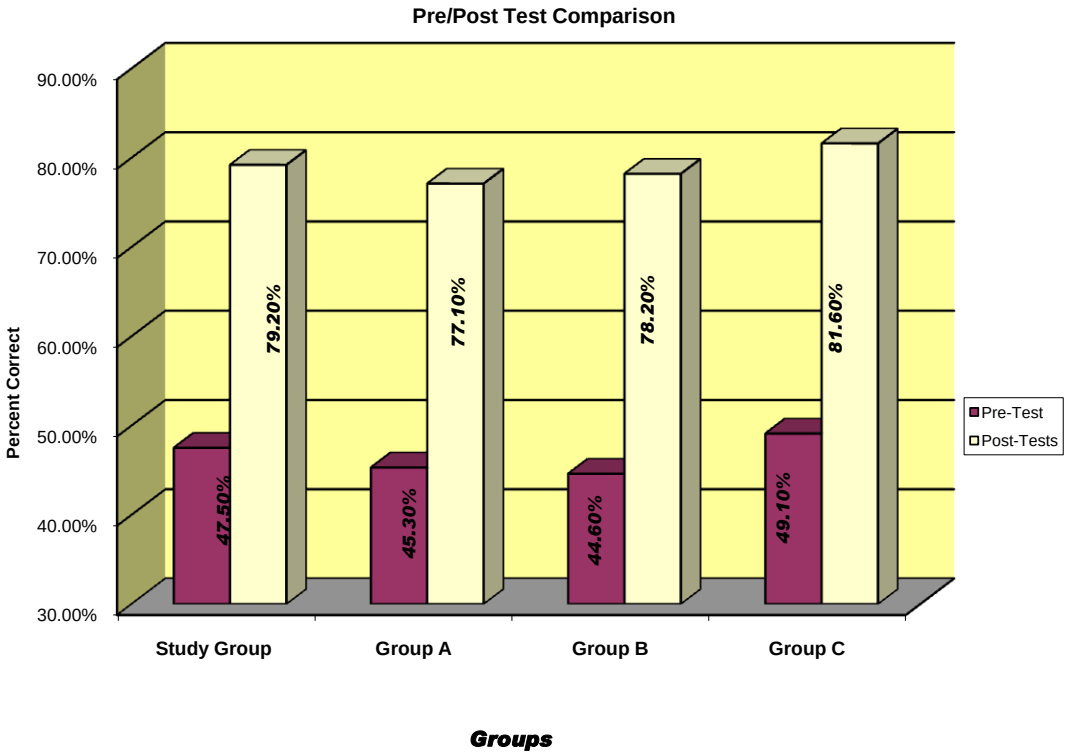

Figure 2. Graph representing pre-test and post-test results.

The final set of results deals with the end of unit test, consisting of 26 questions covering all of the topics in this particular unit. The test was given to all four groups and their scores were not only compared with each other, but also compared with the average test score from last year's classes. The study group, again, was eclipsed by Group C on their scores for the unit test; however, the margin was even smaller this time. The average test score for the study group was 75.3%. Average test scores for the control groups were; Group C, 76.0%, Group B, 73.3% and Group A, 72.9%. As mentioned, the study group's test average was also compared to the previous year's class average for this same unit. The previous year's classes had an average score of 74.4% on the same test. (See Figure 3.)

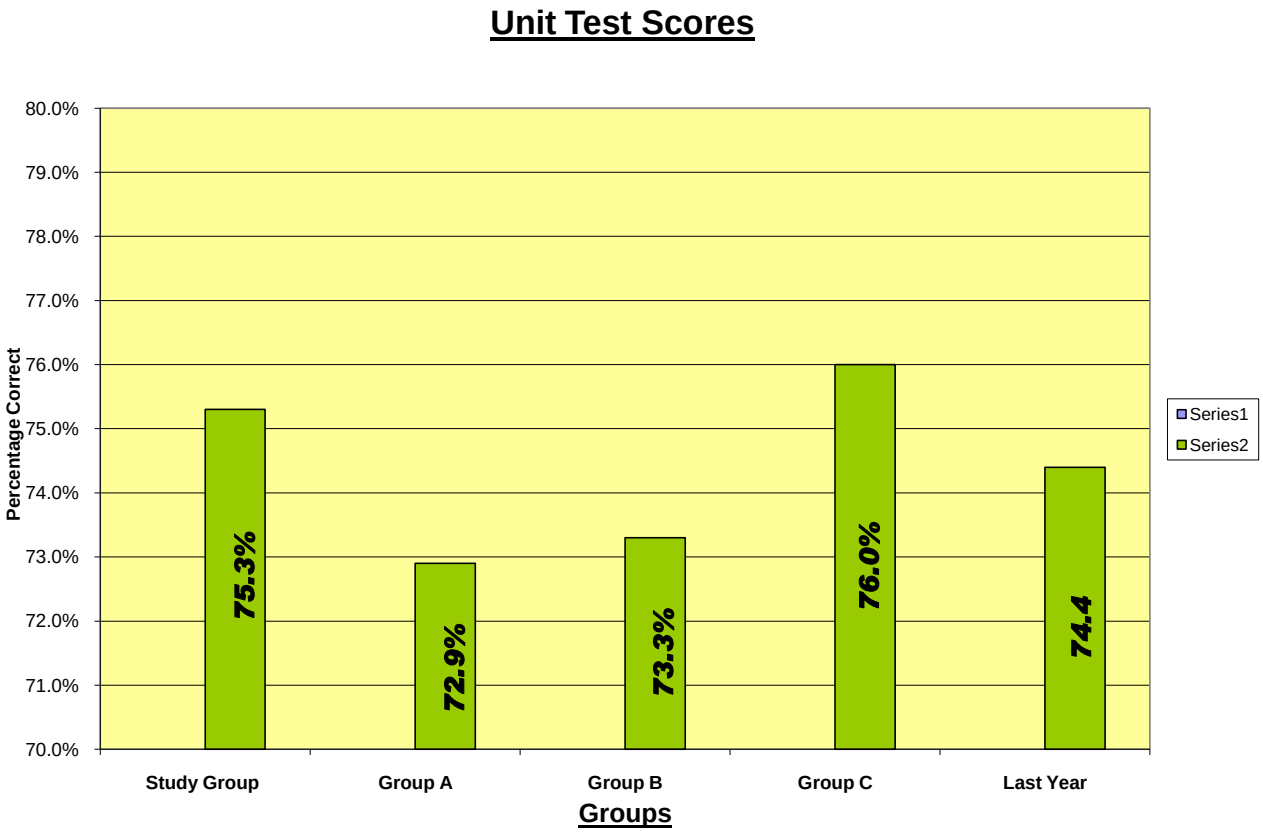

Figure 3. Chart representing unit test scores.

Conclusions and Recommendations

While the results of this study are by no means conclusive evidence that the Internet does have a positive effect on the learning of middle school science students, it does seem that there could be a connection. There are many factors influencing the results of this study. Because each class contains different students, their levels of understanding of the material can vary significantly. This could be a huge contributing factor to why Group C consistently scored higher than all of the other groups, including the study group. If Group C has a few higher level students in it, then this could be enough to make the group's overall test average slightly higher than the study group's average. All this aside, the fact that the study group's test scores were higher than the other two sections and the previous year's average test score lends some validity to the theory

that the Internet might actually help students learn more completely. It was obvious that the study group had more of an interest in the material because it was being presented in a new and exciting way. These types of activities keep the students more engaged in the lessons, and when students are engaged, they get more out of the lesson. This, alone, is reason enough to add more Internet-rich and technology-rich activities into the curriculum, regardless of the subject you teach. Academic reasons are not the only ones that should make you want to increase the amount of Internet usage in your classroom environment. As mentioned earlier, the Internet is going to be a critical part of our lives in the future. Preparing students for this inevitability will make them more productive adults, down the road. Most, if not all, professional teaching organizations agree that there are many reasons why more Internet-based activities should be implemented into the curriculum. These organizations have realized, for a while, that the Internet is the way of the future, and education should include these technologies. Because it is the way of the future, there are many places to find grants to fund these types of programs. Grants are offered through the U.S. Department of Education Technology Grant, and programs run by manufacturers of computers and software. These programs are a win-win situation for the company and the educator. While the educator receives free, or greatly-reduced pricing for, hardware and software, the company is receiving exposure for their products. The one thing that could make this a much more successful venture is professional development. Educators that do not have the skills to successfully implement the Internet into the curriculum should be educated to do so.

There are a few recommendations that could possibly make this study more accurate and effective in the future. The first recommendation would be to have better access to the Internet in the school. More in depth and individualized activities could be used. The more exposure the students have to the Internet, the better the possible results of the study. Another

recommendation that could be made is to vary classes being studied so there is a better cross-section of the classes, and not a stronger or weaker class being studied.

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Appendix A: Computer and Internet Survey

Gender: Male Female
Class/Block:_____

Please answer these questions to the best of your ability.

1) Do you have a computer at home?
Yes No

2) Do you have access to the Internet at home?
Yes No

3) Do you have access to the Internet anywhere besides at school?
Yes No

4) How would you rate yourself as an Internet user?
Beginner Intermediate Advanced Master

4) How much time do you spend on the Internet?
0-5 hrs./week 5-10 hrs./week 10-20 hrs./week > than 20 hrs./week

5) What do you primarily use the Internet for?
Work School Recreation Communication Other

4) I like working with computers
Strongly Agree Agree Indiff. Disagree Strongly Disagree

5) I think computers are important tools for education.
Strongly Agree Agree Indiff. Disagree Strongly Disagree

7) I use computers mostly for gaining access to the Internet.
Strongly Agree Agree Indiff. Disagree Strongly Disagree

8) I use the Internet at least 5 times a week for educational purposes.
Strongly Agree Agree Indiff. Disagree Strongly Disagree

9) I feel that the Internet is a valuable tool in education.
Strongly Agree Agree Indiff. Disagree Strongly Disagree

10) I think the Internet should be used more in the classroom environment.
Strongly Agree Agree Indiff. Disagree Strongly Disagree

11) I think Internet activates are fun and exciting.
Strongly Agree Agree Indiff. Disagree Strongly Disagree

12) I feel that further use of the Internet in school would help me academically.
Strongly Agree Agree Indiff. Disagree Strongly Disagree

Effects of Communication and Socialization Skills on Resiliency and Appropriate Emotional Response in Secondary Students

Tracy L. Hyde

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The University of Tennessee at Chattanooga

The Institutional Review Board of the University of Tennessee at Chattanooga (FWA004149) has approved this research project #06-055.

Introduction to the Problem

The rationale for this research came from my teaching in an alternative school setting. The students in this setting have been placed here for various reasons such as weapons, assault, drugs, gang-related problems, truancy, and transition between state's custody and correctional facilities. Students are placed in this setting for a minimum of 20 days, up to the remainder of the school year. Through my involvement with these students, I found that their communication skills were lacking. I began to wonder about the path that had landed them in this placement. Some obvious reasons are (a) an increased incidence of single-parent homes, which may lead youth to virtually rear themselves; (b) many students are being subjected to verbal, physical, or sexual abuse at the hands of the very adults that are supposed to protect and appreciate them; (c) the increased violence in the media that our culture has come to embrace; and (d) the learned behaviors that are most often modeled for them. These variables seem to have led to a fight or flight mentality in our nation's youth, which is evident when one turns on the news to hear of yet another school shooting at the hands of misguided, disconnected youth.

This led me to wonder if, perhaps, the skills that were once taught at home could be introduced in the classroom, to enable these students to successfully navigate through the difficulties of their lives. Such endeavors might also allow students to see that their lives are not so different from the lives of their peers, regardless of neighborhood or socioeconomic status.

These epiphanies directed me to think of the futures of "alternative" students in the work place. Would they be able to hold a job if their coping skills consisted of a repertoire of insults, obscenities, and a desire to escape difficult situations? In order for today's students to thrive within an educational, professional, familial, or social setting, they must have appropriate emotional responses, as well as new coping skills. It was my hope that skills taught, both directly

and indirectly, would increase their self-esteem and provide a feeling of self-efficiency which would lead to more control in their everyday decisions.

Through informal discussion, I found that many of my students' self-perceptions were very different from those of my cohorts and myself. This was a shocking discovery for me. How can teenagers define themselves as "ugly," "evil," "angry," "criminal," "betrayed," "alone," or "stupid?" Their statements helped determine the course of the intervention. The desperate need of reframing and anger management was evident. Appropriate communication guidelines and a sense of empathy for others were also lacking. These characteristics must be addressed not only during a weekly seminar but also throughout various teaching moments allowed by the nature of the classroom.

Review of Literature

There are growing bodies of evidence that show the "importance of social competence and the problems associated with antisocial behavior in children and youth. Stated simply, youths who fail to develop adequate social competencies or who engage in antisocial behaviors to a significant extent are in danger of severe negative outcomes which may fundamentally alter the course of their lives and their chances for success and adjustment. The ramifications of failure to develop adequate levels of social competence include among other things, peer rejection, depression and anxiety, underemployment and unemployment, mental health problems, strained interpersonal and familial relationships. The ramifications of engaging in significant antisocial behavior during the formative years include among other things involvement with the justice system, employment problems, substance abuse and mental health problems, interpersonal and familial relationships, perpetuation of child and spouse abuse, and the perpetuation of this cycle to the next generation through an insidious pattern of modeling and coercion. When severe deficits

in social competence occur simultaneously with high levels of antisocial behavior (which is often the case), the prognosis is particularly grim. Although these problems are not particularly unusual, their costs to individuals, families, and society are enormous" (Merrell & Caldarella, 2002, p. ix).

Schools are not separate from society, where “social problems are seen in a microcosm--problems like lack of communication, poverty, marginalization, intolerance, and loss of values” (Kuntz, 2000, p. 14). Many of these things lead to what Antonio Garcia Correa, professor of educational psychology at the University of Murcia, in Spain, calls “emotional illiteracy.” Educational systems, he says,

> have been more concerned about filling heads with knowledge rather than teaching children to think and reason. A lot of research has been done on children’s academic results and how to improve them, but we have been less concerned about their social and emotional development. The result is that pupils know more but behave worse. (p. 14)

Kuntz (2000) explains this from an educator’s standpoint, when he says,

> One thing teachers agree on is that the answer is not to punish or expel pupils or to send them to the head teacher’s office. Civil behavior and sociability are not values that can be instilled overnight. They are the fruit of a daily effort of everyone--the educational community, the parents and of course the most important people, the children. The rounded academic and social education of future generations depends on recognizing this. (p. 14)

Lindquist and Molnar (1995) believe that factors such as poverty, abuse, disintegrating home environments, the culture of violence, materialism, and pressures to achieve may all combine at one time or another to make children behave the way they do. Novick (1998) and

Herdman (1994) attribute most inappropriate emotional response to a lack of self-esteem and communication skills. Novick (1998) states that, “resilience and protective factors are positive counterparts to vulnerability and risk factors” (p. 202). Furthermore, resilient children take a very proactive stance regarding their ability to overcome and resolve problems, exhibiting a very self-assured attitude. The Comfort Corner (Novick, 1998) is a component of the Primary Intervention Program in Camas, Washington. This model allows for a Child Development Assistant (CDA) for students who have difficulty within the school setting. Students can talk with the CDA regarding their feelings. The Comfort Corner is a safe house to be used at the child’s discretion, and children naturally wean themselves, as they are ready. The CDA gives them unconditional support and patience while encouraging healthy, safe relationships with others. These primary students discuss feelings, learn better communication skills, create new friendships, and enhance self-esteem. This model stresses brain research that demonstrates that emotions can amplify or impede the thinking process. “When children are worried about Dad going to jail, not enough money to pay the rent, or parents fighting, learning is the last thing on their mind,” (Duley, as cited in Novick, 1998, p. 17). Self-esteem and self-efficacy are key elements contributing to resiliency, allowing the child to cope successfully with challenges. Resilient children “take an active stance toward an obstacle or difficulty. In order for resiliency to flourish, one’s efforts must be successful and gratifying in some way, at least some of the time” (Novick, 1998, p.15). Personnel, parents, and children who were interviewed seemed to have had a positive experience with such a model.

The Minnesota Preschool Project (Bower, 1985) operated under the premise that emotions are motivators and organizers of behavior. Emotions control the way people think and perceive events in the world. Observational measures were developed for positive, negative, and

inappropriate emotional responses of preschool children. Over two school terms, the children's emotional responses were recorded and the children were rated by teachers, with regard to social and emotional skills. Each child was then ranked by classmates, according to whether they especially liked, disliked, or felt neutral about him or her. This study brought to light some interesting findings. It found that smiles and friendly disposition were strongly related to teacher and peer rankings of social competence. It was also found that children's emotional expressiveness also affects teachers' perceptions of students' physical attractiveness (using photographs). The child's physical attractiveness positively correlated with teachers' perception of social competence and peer attention; however, when random college students ranked the children on physical attractiveness using the same photographs, the link with teacher rank disappeared. This tells us that behavior can seriously influence the way people are viewed, regardless of intellect or beauty.

The Social Skills Training for the 21st Century Model (SST-21) (Weiner, Fritch, & Rosen, 2002) most closely aligned with this researcher's thoughts regarding what was to be achieved. The behavioral modification approach was a blend of direct teaching with the indirect approach that used such resources as media, recreation, family and community, and enterprise. The media portion of this model used television and movies, print cartoons, popular music, and interactive stories to teach appropriate emotional responses. High interest material such as television, popular music, and games were more engaging to today's adolescents. Recreation taught social skills instruction through games and sports events. Family and community focused on real-life situations within the family structure which would be difficult to implement without parental involvement. Enterprise, the final component of this model, used exercises calling businesses with a list of questions that subjects had to answer from their conversation with the associate. They

later discussed responses they were given in a group setting. Participants learned to creatively handle situations that are very likely to occur in their natural environment. One advantage to this model was that most exercises could be completed individually or in a group setting. This was important because the facilitator could wait until all participants were proficient at communication skills before doing group activities; therefore, emotional outbursts were greatly reduced. This article gave no statistics regarding actual behavior modification of participants.

The Outward Bound program, at George Washington High School in New York City, has succeeded in motivating at-risk students through experiential learning. The program consists of a backpacking trip to the Catskills' Panther Mountain, while developing student self-esteem and self-reflection skills. The premise behind the program is that, by expanding students' experiences and encouraging communication, students will become excited about learning. Faculty members began building support by documenting everything they did through slides and student writing, publishing a student magazine and newsletter, contacting elected officials and the superintendent, making T-shirts and jackets, and conducting faculty workshops around team-building. Funds were then secured for faculty to attend urban and wilderness courses throughout the country. The essentials identified for successful collaboration include a committed faculty, administrative support, students who want to be there, adequate funding, large blocks of time, and low student/teacher ratios. According to Herdman (1994), rock climbing can be:

> used to teach young people about how to deal with the metaphorical walls that we all face in our lives. The primary purpose of asking a student to climb a 40-foot rock face is not to teach about the elements of climbing, but rather to show how to challenge self-perceived limitations, how to trust another human being, and how to break down into small manageable steps the apparently impossible walls one often faces.

This program also consists of a "24-Hour Experience" that involves spending a day and night exploring the arts and culture of another community, as well as a service project within that community. Reflection and teamwork are essential parts of the process that eventually result in an environment that encourages positive risks, challenges students with relevant new material, and empowers students to use this new information as a tool to forge their own futures (Herdman, 1994).

Joe Valandra, director of Neighborhood Ministries, and members of St. Matthew's Episcopalian Church, founded Talking Circles (Hanson, 1997). This model is based loosely on the beliefs of the Sioux Indians. Approximately 50 students meet five times per week to discuss issues that are important to them. They must respect the rules of the Talking Circle, which include having no animosity toward others, honesty within the circle, and trust that the circle will never be broken. Valandra feels great pride in the model. "We don't pass a feather or anything like that. But we give them respect and a place to say what they need to say. Even members of rival gangs will listen to each other within the circle" (p. 42).

Many neighborhood organizations also seek to empower inner-city youth through such organizations as the YMCA, the Boy Scouts and Girl Scouts, Girls Inc., and the Boys and Girls Clubs. McLaughlin and Irby (1994) found that all successful programs had a few common features:

- They included a family-like environment.
- Activities offer active participation and challenges.
- They have planning, preparation, and performance.
- They are youth driven and sensitive to everyday realities.
- They assume youth are a resource instead of a problem.

- They treat youth as adults, while still sheltering them as children.
- They are accessible.
- They empower youth and develop their competencies through challenging, prodding, nagging, teasing, loving, and providing many opportunities for practice and experience.
- They reach out to inner-city youth with messages that they will hear, even though many are suspicious of anything that purports to be good for them.

The common thread between all of these articles is that many different approaches can be blended together to have the positive effect of increased self-esteem and improved emotional intelligence through efficient communication skills.

Data Collection and Results

Data Collection

Participants in this study were the first 10 students, Grades 6 through 12, who returned their consent forms from our population of approximately 30 students. (I realize this sample is small, but our population is small, and the results should be representative of our student population.) Participants' parents were given the Home & Community Social Behavior Scales (Merrell and Caldarella, 2002) to complete and return both pre- and post-social skills training.

Participants met an average of 3 hours per week for 8 weeks. The intervention started with a simple list of rules for "seminar," such as (a). listen to others, (b). show respect to others, and (c). everyone must contribute to the process. These rules were discussed, at length, and examples of following the rules were demonstrated, as well as an explanation given as to why the rules were necessary.

The sessions consisted primarily of media and group discussion. The first movie that was shown was "The Breakfast Club," which addressed diversity and stereotypes. The lesson was designed to build community within the group by helping the students realize that, regardless of dress or financial background, people feel the same emotions and everyone has a need to belong. The movie, "The Hurricane," was used to initiate the topic of anger management, and was followed with a discussion in which the participants were asked to focus on their hot buttons so that they might be more cognizant of when they were at risk of losing their cool. "Antwon Fisher" focused on parenting styles and self-perception, as well as handling anger. "Coach Carter" brought to light the character traits of self-discipline and perseverance. "Soul Food" created discussion regarding family issues and honesty. "The Green Mile" fostered talk about reputation. "Madea's Family Reunion" and "Madea Goes to Jail" brought out topics such as healthy relationships and extended family.

At the end of 8 weeks, students were grouped in pairs and assigned a task that required them to apply the skills learned. Each group had to work together to overcome problems experienced in the adult world such as financial issues of poor credit, housing problems, and other relationship issues. The students were successful in working through the conflicts that arose. Many expressed the opinion that the seminars had helped them deal with serious issues without resorting to anger or violence. It was hoped that the skills taught would transfer from the academic world into participants' real worlds. The skills that were emphasized included thinking skills, concrete and abstract emotions, appropriate emotional response, conflict resolution, handling criticism, accepting compliments, dealing positively with authority figures, developing positive self-concept/self-image, appropriate forms of self-expression, building trust with others, and positive communication techniques. Students helped determine the course of the next

seminar by each completing a form at the end of seminar every week that listed three things they had learned, two questions they had, and one thing they now understood. This became a very important tool used to check comprehension, aside from regular group discussion.

Results

This investigator felt it would be best to break down the results, first, by subscales, then summarize the two comprehensive scales. The first subscale, for social competence, was the **peer relations subscale**. Seven of 10 participants showed improvement in raw score, as well as percentile rank. One student showed no progress or regression, and two students showed a drop in score, after the intervention. The social functioning level for peer relations increased two levels for one student and one level for three students. The remaining six students maintained their pre-intervention social functioning levels. The mean score for the **peer relations subscale** increased from 66 to 72.3, post-intervention.

The second subscale for social competence was the **self-management/compliance subscale**. Five out of 10 participants showed an improvement in raw score, as well as percentile rank. One student showed no progress or regression, and four students showed a drop in scores after the intervention. The social functioning level for self-management/compliance remained the same for eight of 10 of the participants, while two showed regression, as one student moved from "high functioning" to "average" and one student moved from "average" to "at risk." However, the mean score for the **self-management/compliance subscale** increased from 53.9 to 54.3.

The results on the two previous subscales were combined to create the **social competence total scale**. Seven of 10 participants showed improvement in raw score, as well as percentile rank. Three students showed a drop in raw score after the intervention. The social functioning levels were maintained, post-intervention, for eight of the participants, while two students showed a

decrease from "high" to "average" and "average" to "at-risk;" however, mean score for the **social competence total** increased from 119.9 to 126.6.

The antisocial behavior scale was comprised of a subscale for defiant/disruptive behaviors and another for antisocial/aggressive behaviors. The desired effect was a decrease in raw score, as this would indicate a drop in negative behaviors demonstrated by the participants. The post-intervention results for the defiant/disruptive subscale were a decrease in raw score for 5 out of 10 participants and an increase in raw score for the remaining 5 participants. The social functioning levels improved for four individuals, dropped for two participants, and remained the same for four individuals. The mean score for the defiant/disruptive subscale showed the desired effect of decreasing from 42.1 to 38.8 for pre- and post-intervention scores, respectively.

The second subscale for antisocial behavior was the antisocial/aggressive subscale. Once again, the goal is a decrease in these behaviors. The post-intervention results were a decrease in score for 7 out of 10 participants. Three out of 10 students showed an increase in raw scores, post-invention. Social functioning levels improved two levels for one student and one level for four students. Four students maintained their social functioning level, while one student dropped from "average" to "at-risk." The mean score for the antisocial/aggressive subscale decreased from 40.4 to 35.1 for pre- and post-intervention scores.

The antisocial behavior total scale is a comprehensive look at the defiant/disruptive and antisocial/aggressive behaviors. Six of 10 participants showed an increase in raw score while four individuals showed a decrease. Overall social functioning levels improved two levels for one student and one level for five students. Three students maintained their social functioning levels, and one student's social functioning level dropped from "at risk" to "high risk.” The mean score for the antisocial behavior total scale decreased from 82.5 to 73.9 after the intervention.

Conclusions and Recommendations

Conclusions

The result of this information is that these behaviors have generalized into participants' daily lives, as is evident in the fact that scores reflect home behaviors. This is important because it suggests that skills taught in the classroom will be implemented in students' personal lives, and may help students enjoy an increase in interactions that result in positive outcomes. The only point of concern in this study is the fact that some students appeared to show an increase in some antisocial behaviors. This realization leads to the question of whether the increase in antisocial behavior is an impact of a constant influx of new students who have had no social skills training, if these numbers take longer to level off, or there may possibly be an increase prior to the desired decrease. The answer to this question can only be found with more research.

It should also be pointed out that a pilot program of this nature is fairly inexpensive to implement. The only expense incurred for this research was the cost of the media portion, which is minimal, given the importance of the desired results. This is not to say that the program could not be expanded to be more beneficial for all parties involved; alas, some effort is better than no effort.

Recommendations

All students will benefit from social skills and communication training, regardless of age or circumstance; however, it is imperative that exceptional education and at-risk youth be given every opportunity for a positive future in a world often filled with negatives. Research supports the belief that exceptional education students have difficulties with social cues and appropriate responses. It is also easily determined that at-risk youth are more likely to experience negative

outcomes throughout their school careers, which would account for their desire to drop out of school, at the first opportunity.

A longitudinal study would help determine the effects of social skills training, but would need to be implemented school-wide to ensure common coping skills for all students. This program would be most effective if it were expanded for tolerance teaching, and a "challenge course" could be added on campus. Small grants ($500-$2500) are available through Tolerance.org and Politechild.com. The U.S. Department of Education lists several programs under the topical heading, Safe and Drug-Free Schools, including programs such as the Safe Schools--Healthy Students Initiative, Safe and Drug-Free Schools and Communities: Governors' Grants, Partnerships in Character Education, The Challenge Newsletter, Foundations for Learning Grants, and Elementary and Secondary School Counseling Programs. This intervention could also be adapted to fall under topical headings such as Disadvantaged Persons or Academic Improvement, and could include Prevention and Intervention Programs for Children and Youths Who are Neglected, Delinquent or at Risk, and also the 21st Century Community Learning Centers could easily be implemented in this particular school setting.

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Daily Quizzes and Unit End Test Versus Unit End Test Only. Who Benefits?

Allison M. Isenberg

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The University of Tennessee at Chattanooga

The Institutional Review Board of the University of Tennessee at Chattanooga (FWA00004149) has approved this research project #06-138.

Introduction to the Problem

The purpose of this study is to determine the impact of daily quizzes on a student's final grade in high school American History. Will daily quizzes help improve the final grade? Will this teach students to take time everyday to review what the teacher has taught them? Students need to learn to take at least 20 minutes of their day to look over their notes, check out their friend's notes, read the material again from the book and add to their notes, and make questions for the next class meeting. If students review everyday, they may do better on their unit end tests.

One variable the researcher would like to focus on is retention. Students tend to forget information right after the class ends. The researcher would like to see if everyday studying and everyday quizzes help the students retain the information.

Another variable the researcher would like to focus on is whether or not a daily review in class will help the students increase their unit end test score The researcher will give a daily quiz and a quick overview of the work from the last class meeting.

Review of Literature

Does attendance play a part in better grades? "A common assumption in higher education is that attendance substantially contributes to course grades" (Shimoff & Catania, 2001, p. 192). Would giving daily quizzes help with attendance, thus helping raise the unit end test scores? According to Shimoff and Catania (2001), "increased attendance does indeed improve academic performance" (p. 194).

If attendance increases, would daily quizzes or daily assessments increase unit end test scores? The intent of weekly or daily quizzes is to "continuously survey all students for their understanding of basic ideas" (Rogerson, 2003, p. 160). Daily class assessment was to accomplish three tasks:

> (i) to obtain feedback from all students in the class, not just the more vocal ones, (ii) to obtain feedback immediately after each class, thereby creating an expectation in students that they needed to make an effort to understand the material presented every time they came to class, and (iii) to give feedback to students on their answers to the assessment questions. (Rogerson, 2003, p. 160)

According to Rogerson, by the end of the study, the students liked the opportunity to verify their understanding of the material that was presented in class. "Everyday assessment of classroom learning is crucial because it provides feedback directly to students in the process of their learning, more than mere measurement or rubric ranking does" (Stokrocki, 2005, p. 15). In addition, the students verify their work; Rogerson (2003) liked that fact that it helped him with his teaching.

According to Stokrocki (2005), there are a few suggestions for everyday assessment. Include a pre-test without teaching; both teachers and students will see growth from the first day to the last day of teaching. Engage students in the process of everyday assessment. This allows the students to be involved with their learning and actually get to interact with the teacher. Another suggestion is to compare the first assignment with a later one. This allows the students to see their progress and see the growth they have had.

In one study, a biology teacher gave his students a weekly quiz. During the study, most students preferred having weekly quizzes, some students certainly felt better able to keep up with their studies; and some students certainly appreciated an alternated component to their course grade (Haberyan, 2003). According to Haberyan's study, the students did not have any enhanced learning when given the weekly quizzes.

On the flip side, daily quizzes tend to help students. In a Japanese language program, there were some key points identified during a daily assessment: (a) daily grading provides continuous feedback for the improvement of student learning, (b) students are more motivated to study with a daily grading systems, (c) daily grading encourages students to review and prepare lessons better, and (d) daily grading makes students attend class more often (Choi & Samimy, 2002).

According to Choi and Samimy (2002, p. 33), "responses from both students and teachers suggest that daily grading system is a good tool for assessing students' everyday performance and motivating them to prepare and review for every class meeting."

Methodology

Description of the Intervention

The teacher begins by teaching the material to two classes. Class one will receive daily quizzes over the material that was taught the last time the class was together. These quizzes will not count as a number grade, but will count as a participation grade. Class one will also receive a unit end test. Class two will only receive a unit end test. Both classes will receive the same academic material over the same period of time. The final outcome of this research project will see if daily quizzes help increase the unit end test scores.

Research Questions

- Will daily quizzes help the students study for a unit end test?
- Will daily quizzes help the student retain the material over a longer period of time?
- Will daily quizzes help student increase their overall grade on the unit end test?

Data Collection and Results

Data Collection

Data for the outcome of this research project will be based only on the grades of the unit end test. See Appendix A for daily quizzes (quizzes 1-4) and quiz answers, Appendix B for the pre-test, and Appendix C for the unit end test and answers.

Subjects

The enrollment for the project was 7 students for block one and 11 students for block four. This is due to the number of signed informed consent forms received by the researcher.

Results

The results of the test are what the researcher expected. Block four received the daily quizzes and includes about nine inclusion students (not all of whom participated in the project). Block one did very well, considering they didn't receive any extra quizzes or assignments to help them compensate for the quizzes. In Figure 1, the graph shows that block four brought the class average up 41 point. Block one only brought their class average up 24 points. That is a 17 point difference. It shows that daily quizzes do help in bringing up class averages.

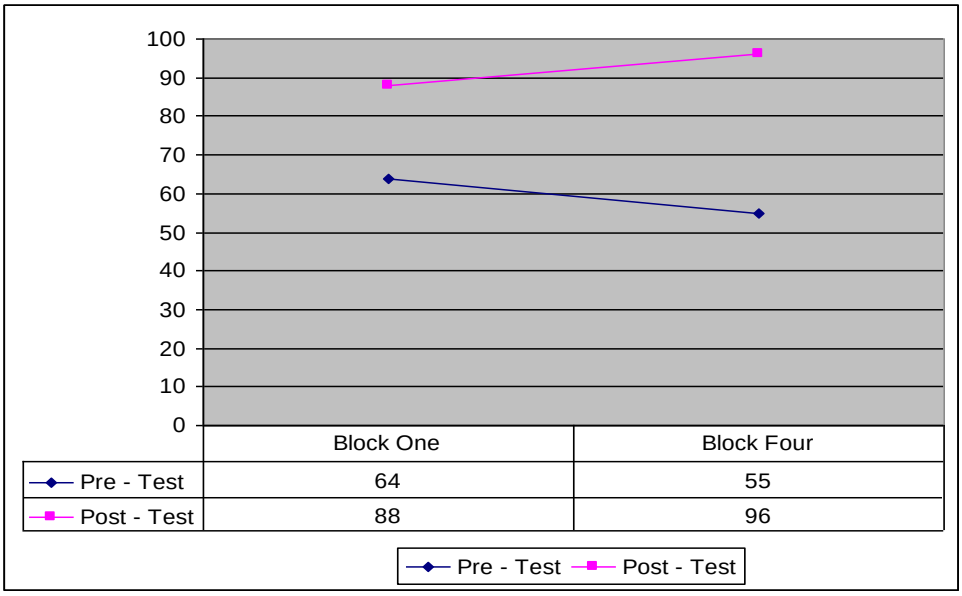

Figure 1. Pre-test and post-test scores.

Conclusions and Recommendation

Conclusions

The point behind this project was to see if daily review of the material would help the students. If daily quizzes do increase unit end test scores or the retention of the material, shouldn't teacher try to do a short review and quiz everyday?

If teachers can help their students remember the material, then we should. Teachers should do everything in their power to help students learn. With this research project, teachers can show their students that studying a bit every day may help improve their grades. In turn, students may take it upon themselves to take the time to study every day.

Recommendations

If this research project is done in the future, the researcher would suggest trying it for a longer period of time. The researcher would also suggest that it is completed in a home classroom. It was very difficult to complete this project in another teacher's room.

Generalizations that can be made, based on the results of the study, include that daily quizzes do help improve the students' overall unit end test grade. According to the literature the researcher read, weekly quizzes do not work. The researcher could not find any information on the effects of daily quizzes, but the researcher found that daily grading does tend to help with unit end scores. A recommendation for teacher professional development is that teachers need to quiz at least every other day. Quizzes every day seemed too much for the students and teachers, but every other day would not create such a burden.

The research did not find any grant money available for further research in the area of daily quizzes. Technology could play a very big part in this. If the teacher gave the students a quiz in class every other day, the teacher then could put a quiz or an activity online on the days

without a quiz. This would help the students to sharpen their minds and practice every day. All of this would be assuming that every student had access to a computer and the Internet.

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Appendix A: Quizzes One through Four and the Answers

Quiz One

1. Name 2 of the 3 Axis Powers?
2. What years did WWII take place?
3. What started WWII?
4. During WWII, the government tells the factories to stop building cars and make what?
5. What two theatres did WWII take place in?

Quiz One – Answers

1. Name 2 of the 3 Axis Powers?
   Germany
   Italy
   Japan
2. What years did WWII take place?
   1939-1945
3. What started WWII?
   Germany attacks Poland
   Rise of Nationalism
4. During WWII, the government tells the factories to stop building cars and make what?
   Boats, airplanes, jeeps, ammo
5. What two theatres did WWII take place in?
   European
   Pacific

Quiz Two

1. What is rationing?

2. Who is this and what does she represent? (graphic omitted)

3. What is a victory garden?

4. Why did the War Production Board organize nationwide drives to collect scrap metal, paper, etc?

5. What did U.S. citizen do to fund the war efforts?

Quiz Two -- Answers

1. What is rationing?
   A restriction of people's right to buy unlimited amounts of particular foods and other goods, implemented during wartime.

2. Who is this and what does she represent? (graphic omitted)

   Rosie the Riveter – Hardworking, American women

3. What is a victory garden?
   Vegetable, fruit and herb gardens planted at private residences in the United States, during World War I and World War II to reduce the pressure on the public food supply brought on by the war effort.

4. Why did the War Production Board organize nationwide drives to collect scrap metal, paper, etc?

   To recycle them and make them into goods that could be used for the war.

5. What did U.S. citizen do to fund the war efforts?
   Buy War bonds
   Ration food and other items

Quiz Three

1. “Yesterday, December 7, 1941, a date that will live in infamy.” What happened on that date?

2. Who was the President during WWII?

3. How did the U.S. get back at Japan after Pearl Harbor?

4. How is WWII and the current war the same?

5. How is WWII and the current war the different?

Quiz Three - Answers

1. “Yesterday, December 7, 1941, a date that will live in infamy.” What happened on that date?

   Pearl Harbor was attacked by Japan

2. Who was the President during WWII?
   FDR

3. How did the U.S. get back at Japan after Pearl Harbor?
   Bombed the fire out of them… Declared war on Japan

4. How is WWII and the current war the same?
   Long period of time, both attacked on American soil.

5. How are WWII and the current war different?
   The United States was unified during WWII and now we are not as unified.
   U.S. has held back more during the current war, WWII the U.S. didn’t hold back on taking aim.

Quiz Four

1. The Battle of the Bulge takes place in what theatre?

2. What battle was the major turning point of WWII?

3. What theatre did the Battle of Midway take place in?

4. What is V-E Day?

5. How many people died during the Holocaust?

Quiz Four - Answers

1. The Battle of the Bulge takes place in what theatre?
   European theatre

2. What battle was the major turning point of WWII?
   Battle of Midway

3. What theatre did the Battle of Midway take place in?
   Pacific theatre

4. What is V-E Day?
   Victory in Europe day

5. How many people died during the Holocaust?
   6-7 million

Appendix B: Pre-test

1. One of the causes of World War II was….
    a. The Great Depression
    b. Rise of Nationalism
    c. Holocaust
    d. The Japanese

2. On December 7, 1941, Japan launched a surprise attack against _____, thereby drawing them into World War II.
    a. Poland
    b. Germany
    c. France
    d. United States

3. During WWII, many _____- Americans were sent to relocation camps
    a. German
    b. French
    c. Japanese
    d. Native

4. The treaty of Versailles created _____.
    a. World War II
    b. The Allies
    c. League of Nations
    d. Fascism

5. A totalitarian government tries to have _____ over its citizens.
    a. No control
    b. Complete control
    c. Some control
    d. Little control

6. The military's work force need was so great that the _____ was formed.
    a. NBCC
    b. OPA
    c. WPB
    d. WAAC

7. The Office of Price Administration fought inflation by …
    a. Freezing wages , prices, and rent
    b. Giving away food and money
    c. Increasing the amount of money in circulation
    d. Allowing everyone to purchase food and other needed items on credit

8. Establishing fixed allotments of goods deemed essential for the military is called _____.
    a. Rationing
    b. Stealing
    c. Giving items away
    d. Hiding

9. _____ is the U.S. program to develop an atomic bomb for use in World War II.
    a. Columbia project
    b. American project
    c. Manhattan project
    d. Bomb project

10. The government needed to ensure that the armed forces and war industries received the resources they need to win the war. What agency assumed that responsibility?
    a. OPA
    b. WPB
    c. WAAC
    d. NWLB

11. Among the brave men who fought in Italy were pilots of the 99th pursuit squadron, otherwise known as _____.
    a. 442nd regimental combat
    b. 92nd Infantry division
    c. The Tuskegee Airmen
    d. Company E

12. The day on which the allies launched an invasion of the European mainland during World War II.
    a. E-Day
    b. D-Day
    c. W-Day
    d. J-Day

13. Which battle did the Allies succeed in turning back the last major German offense of the war?
    a. Battle of Wounded Knee
    b. Battle of Midway
    c. Battle of Boulder
    d. Battle of the Bulge

14. In World War II, what is the name of the group of nations, including Great Britain, the Soviet Union, and the United Stats, that opposed the Axis Powers?
    a. Axis
    b. Korps
    c. Allies
    d. General

15. The law that provides financial and educational benefits for WWII veterans.
    a. The GI Bill of Rights
    b. WWII Vets Bill of Rights
    c. The Vets Bill of Rights
    d. Educational Bill of Rights

16. The day of unconditional surrender of Nazi Germany marked the end of WWII in Europe.
    a. V-E Day
    b. N-Day
    c. C-E Day
    d. G- Day

17. Which battle was a turning point in the Pacific and a Japanese official said the Americans avenged Pearl Harbor?
    a. Island Battle
    b. Battle of Coral Sea
    c. Battle of Midway
    d. Battle of Japan

18. Two atomic bombs were dropped on Japan in August 1945, which two cities were hit? **Choose TWO answers**
    a. Hiroshima
    b. Tokyo
    c. Osaka
    d. Nagasaki

19. After the discovery of Hitler's death camps, the Allies put Nazi leaders on trial for crimes against humanity, crimes against peace, and war crimes, these trials were called _____.
    a. Nazi trial
    b. Nuremberg trial
    c. German trial
    d. Death camp trial

Pre-test Answers

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    b. Rise of Nationalism
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    d. The Japanese

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    d. United States

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    c. Battle of Midway
    d. Battle of Japan

18. Two atomic bombs were dropped on Japan in August 1945, which two cities were hit? **Choose TWO answers**
    a. Hiroshima
    b. Tokyo
    c. Osaka
    d. Nagasaki

19. After the discovery of Hitler's death camps, the Allies put Nazi leaders on trial for crimes against humanity, crimes against peace, and war crimes, these trials were called _____.
    a. Nazi trial
    b. Nuremberg trial
    c. German trial
    d. Death camp trial

Appendix C: Post-test

Fill in the blank

1. What started WWII?
2. What years did WWII take place in?
3. “Yesterday, December 7, 1941, a date that will live in infamy.” What happened on that date?
4. What two theatres did WWII take place in?
5. Explain rationing
6. Who is this? (graphic omitted)
7. What does she represent?
8. What is a victory garden?
9. Who was the President during WWII?
10. The Battle of the Bulge takes place in what theatre?
11. What battle was the major turning point of WWII?
12. What is V - E Day?

Multiple Choices – Choose the best answer

13. _____ is the U.S. program to develop an atomic bomb for use in World War II.
    e. Columbia project
    f. American project
    g. Manhattan project
    h. Bomb project

14. The day on which the allies launched an invasion of the European mainland during World War II.
    a. E-Day
    b. D-Day
    c. W-Day
    d. J-Day

15. In World War II, what is the name of the group of nations, including Great Britain, the Soviet Union, and the United States, that opposed the Axis Powers?
    a. Axis
    b. Korps
    c. Allies
    d. General

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    b. Nuremberg trial
    c. German trial
    d. Death camp trial

18. J. Robert Oppenheimer headed the staff of scientist that created what project?
    a. Columbia project
    b. American project
    c. Manhattan project
    d. Bomb project

19. What do we call the day that the Japanese surrendered?
    a. V-J day
    b. V-E day
    c. V- D day
    d. V-S day

Post-test Answers

Fill in the blank

1. What started WWII?
   German attacked Poland
   Rise of Nationalism

2. What years did WWII take place in?
   1939-1945
3. "Yesterday, December 7, 1941, a date that will live in infamy." What happened on that date?
   Japan attacked Pearl Harbor

4. What two theatres did WWII take place in?
   European
   Pacific

5. Explain rationing
   A restriction of people's right to buy unlimited amounts of particular foods and other goods, implemented during wartime.

6. Who is this? -- Rosie the Riveter (graphic omitted)

7. What does she represent?
   Hardworking, American women

8. What is a victory garden?
   Vegetable, fruit and herb gardens planted at private residences in the United States, during World War I and World War II to reduce the pressure on the public food supply brought on by the war effort.

9. Who was the President during WWII?
   FDR

10. The Battle of the Bulge takes place in what theatre?
    European Theatre

11. What battle was the major turning point of WWII?
    Battle of Midway

12. What is V - E Day?
    Victory in Europe day

Multiple Choice – Choose the best answer

13. _____ is the U.S. program to develop an atomic bomb for use in World War II.
    a. Columbia project
    b. American project
    c. Manhattan project
    d. Bomb project

14. The day on which the allies launched an invasion of the European mainland (beach area) during World War II.
    a. E-Day
    b. D-Day
    c. W-Day
    d. J-Day

15. In World War II, what is the name of the group of nations, including Great Britain, the Soviet Union, and the United Stats, that opposed the Axis Powers?
    a. Axis
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    a. Nazi trial
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    c. German trial
    d. Death camp trial

18. J. Robert Oppenheimer headed the staff of scientists that created what project?
    a. Columbia project
    b. American project
    c. Manhattan project
    d. Bomb project

19. The atomic bomb project also had production in what TN city?
    a. Chattanooga
    b. Oak Ridge
    c. Memphis
    d. Murfreesboro

20. What do we call the day that the Japanese surrendered?
    a. V-J day
    b. V-E day
    c. V- D day
    d. V-S day

Classroom Environment: Analysis of Classroom Environment and its Effect on Student Success

Ann Marie McBryar

Education 590, Fall 2006

The University of Tennessee at Chattanooga

The Institutional Review Board of the University of Tennessee at Chattanooga (FWA004149) has approved this research project #06-146.

Introduction to the Problem

As a graduate student with an undergraduate degree unrelated to the field of elementary education, I feel I can benefit from having more knowledge about classroom management. I am particularly interested in how some of the techniques used in the Kovalik Integrated Thematic Instruction model (ITI) would influence classroom management. Of great interest to me were the effects of the presence of plants, lighting, aroma, and music on student behavior.

The reason this interests me is because of a professor I had at The University of Tennessee at Chattanooga. She strongly believed in the ITI model, and encouraged her students to pay attention to details such as lighting, music, smell, and plant life in the classroom environment. I took this advice and I noticed that having all of these aspects intertwined in the elementary school classroom made for an extremely peaceful and comfortable classroom environment where children seemed to thrive. I'm not saying all inappropriate behavior diminished, but I am saying that I believe this particular teacher probably had fewer discipline problems than the teacher down the hall who used harsh lighting, had no plant life, and whose room was cluttered and uncomfortable.

Review of Literature

The first step in managing the classroom is to set the climate and create an inviting learning environment (Longway & Cockman, 2002). Church (2003) says when you set the stage for learning, you are working toward creating the optimum environment for children to learn. Calming colors and music help set the climate. Natural colors found in nature, and 60 beats per minute music are suggested (Hart, 1999). Hart (1999) also suggests having plants in the room. Plants are aesthetically pleasing, absorb toxins, and provide oxygen. Classrooms should be well lit, using as much natural sunlight, as possible, or full spectrum lighting. Teaching and using the

Lifelong Guidelines and Lifeskills from the Kovalik Integrated Thematic Instruction model (ITI) will also help create an inviting classroom environment (Ross & Olsen, 1999; Kovalik & Olsen, 2002). “Learning is enhanced when, in addition to ensuring an absence of threat, the body-brain partnership has a supportive physical environment and meaningful curriculum content” (Hart, 1999, p. 206).

Bullock and Harrison (1998) say classrooms where exploration and new discoveries happen each day produce a positive atmosphere, whereas, those environments that are psychologically or emotionally negative, inhibit learning. Classrooms which are stimulating, and appealing can create a warm, and pleasant environment, and “community or connectedness is the principle behind good teaching” (Palmer, 1998, p. 115). Teachers should provide the kinds of environments that are aesthestically pleasing and welcoming for all students. To make students feel welcome on their first day of classes, for example, a teacher can place a big welcome sign near the entrance of the classroom. This will make students feel welcomed and excited, and can also foster a sense of belonging. Bullock and Harrison (1998) believe that new decorations can help make students feel good about coming to school.

Recent research into child development has raised concerns about the impact of the early childhood environment on children. Exelby and Isbell (2001) say that some early childhood programs recognize the value of using elements and furnishings often found in homes because these home-like features aid in creating spaces that look less institutional and more inviting. Church (2003) says that when children first walk into a classroom, they look for landmarks, or things that are familiar to them. Excelby and Isbell (2001) also say that creating a place that reminds children of a warm and comfortable home can promote friendliness and excitement in them, which not only affects students, but can have a positive effect on teachers and parents. A

home-like environment can make students feel comfortable, rather than intimidated, about being in school. Creating an area where students feel comfortable is essential because, after all, "students also have a right to study in an environment that is conducive to mental concentration, physical activity, and other learning processes" (Bullock & Harrison, 1998, p. 17).

The use of indoor plants as a decoration is another example of how to enhance a classroom, because they both purify the environment and teach children about biological awareness. Living plants can also increase the hospitality and warmth in a classroom. Excelby and Isbell wrote that, "by caring for plants in the classroom, children develop an understanding of the needs of plants and experience the joy of watching them grow" (2001, p. 117). In addition, Excelby and Isbell (2001) suggest that green plants provide a nice contrast to the hard surfaces of tile floors and concrete block walls that so often exist in classrooms. Ayers stated, "features of life in school, for example, carry messages about important issues: this is how people learn; this is how people think; this is the nature of knowledge; this is what is valuable; this is what you should attend to. And these messages constitute a major part of what is learned and what becomes assumed about school" (1993, p. 52).

The use of color in the process of learning can bring life to an otherwise dull atmosphere, and can stimulate apathetic students. Ceccarelli (1998) says that when using color to enhance the look of your classroom, it is vital to incorporate colors which are appealing to all. Ceccarelli (1998) also says that using distinct colors to make accents in your classroom can open up limited spaces and brighten the surroundings.

Another way to invite students to learn is to place substances that smell good in their environment. By appealing to their senses (touch, taste, smell, sound, and sight), we can let them experience a wide range of thoughts and actions. Different kinds of odors in the classroom may

"extend the child's range of understanding and appreciation" (Excelby & Isbell, 2001, p. 47), and each child will gain a different experience from each one. Ceccarelli (1998) argues that smell is often the vehicle of expression more than visual images; we tend to prefer vegetal and floral odors, and these odors are often perceived as positive elements. When we smell an odor, we often make a connection to a material or to a memory, and this can be used to aid the learning process.

The sounds children hear in a classroom are stimulating and instrumental in the learning process. Church (2003) says that wind chimes or peaceful musical backgrounds are great examples that can calm and center all children, particularly the auditory learner. Davies (2000) states that music enhances learning. Both hemispheres of the brain are engaged when music is played. The emotional effect of music is an asset in the classroom. The stress-relieving effects can be utilized to change the mood in the classroom, assist with transitional activities, and alleviate discipline problems. Music can enrich and enliven lessons. Learners can stay focused on tasks. The student remains engaged and the need for disciplinary intervention remains low. Miller (1999) feels that music stirs memories, banishes boredom, and creates a harmonious atmosphere in the classroom. The teacher who uses music can increase interest and motivation in the classroom, thus requiring less time spent on discipline issues.

A classroom is more than just a room; it is a sanctuary for important relationships and personal development. When one walks into a classroom, they should feel comfortable and welcomed by the atmosphere there. The classroom should be built around the many different sights, sounds, smells, and sensations children experience every day. After all, much of a student's time is spent in their classroom, so it is vital that the structure cultivates an interest in learning, rather than boredom. Classroom environment is a variable almost completely under the

control of the teachers, so it is their responsibility to create a dynamic, purposeful, and positive environment.

Data Collection and Results

Data Collection

During the research process, I will answer the following questions: Does on-task behavior increase with the presence of plants, soft lighting, pleasant aromas, and music? Are children more likely to learn in an environment that feels comfortable and safe? The subjects of my study are in the first grade. I have 20 students in my class. The students are split evenly between boys and girls. All of the children participating in the research process are Caucasian because of the rural geographic area in which the research takes place.

The variables in my study are what I can change and what I can keep consistent. For example, I will be able to change the atmosphere of the room which will include the smells, lighting, use of music, and plant life. I will be filtering in these subtle changes on a weekly basis. During the first week in the classroom, I will not be changing anything in the classroom environment. I will be making anecdotal records and recording journal entries, based on the behaviors I see in the classroom, before making changes. With each additional week, I will be making a couple of slight changes and recording data. For example, during week 2, I will change the lighting in the room during center activities, from the harsh overhead lighting to soft lighting provided by the use of lamps. During week 3, I will add changes such as plant life, and aromas such as lavender or lemon, to the classroom. Week 4 will include the addition of soft music playing during center activities and transitional times, throughout the day.

Teacher observations will be conducted to collect data for the first two research questions. I will be using a seating chart to record off-task behavior within the presence of plants

and soft lighting (see Appendix A). I will be able to compare the seating chart with other seating charts showing students who were not on task when none of the variables were present. I will also use a seating chart to mark off-task behavior when soft music is playing and when it is not playing. This will be indicated by two different colors. A daily journal, with anecdotal records, will be used to help with all research questions. It will contain information such as whether music was played during center time, whether the overhead lighting or the softer lighting was used, and other general classroom observations that might help with the research process (see Appendix B).

Students will be participating in the research process by completing surveys which will tell me things such as how they feel when soft music is playing when completing their work. The survey will also tell me how they feel about the presence of plants in the class or how they like the soft lighting in the room. Student surveys will include questions that will allow me to collect information on all research questions. For example, one question might ask, "Does the presence of the following (plants, soft lighting, music, pleasant aromas) help create a more comfortable classroom?" A follow-up question might be, "Does having a comfortable classroom help you stay on task?" I will be analyzing the data collection on a day-to-day basis through review of my anecdotal records, checklists, class observations, and student surveys.

There may be a few obstacles to encounter before I begin the research process. First, I have to make sure the mentor teacher I am placed with as a student teacher has no problem with me changing the room, as needed. This should not take much moving of the teacher's materials. I can bring in a CD player, lamps for soft lighting, plants, and items that will bring a nice fragrance into the room. Secondly, I have to make sure the principal approves of me arranging the room as I see fit, and that he or she is comfortable with me giving the students a

questionnaire or survey. Lastly, I need to make sure I have the support of the parents before I begin my research. I will send a parental consent letter home, introducing myself, telling them about my research project, and requesting their permission for their child's involvement.

Results

My research indicates that aspects of the classroom environment influence classroom management and student success, to some degree. The classroom environment, mainly soft lighting and music, creates an inviting and comfortable atmosphere, promoting student success and on-task behavior. Just as teachers need to prepare for each lesson, we also need to put great thought into the classroom environment. In this study, I looked at the effectiveness of plants, soft-lighting, pleasant aromas, and music on creating a classroom environment that is inviting and comfortable, and whether this type of atmosphere influenced student behavior.

Through personal observation, I can see the students are more relaxed when the lights are not all on and there is soft music playing in the background. I feel this level of comfort leads to more on-task behavior. Data gathered from a student survey provides the most significant insight. The first question relating to this aspect of the study asked, "Does the presence of the following things help create a more inviting or comfortable atmosphere?" Students circled either yes or no and indicated why they thought plants, soft lighting, pleasant aromas, and soft music helped create or did not help create a more inviting or comfortable atmosphere. Of the 20 students surveyed, 9 students said yes, plants help create an inviting environment, 10 students said no, and 1 student circled both yes and no. Sixteen students said that soft lighting helps create a comfortable atmosphere; 3 students said it did not, and 1 student did not respond. Eighty percent of students indicate that soft lighting has an affect on creating a comfortable environment. Pleasant aromas were not a factor in whether or not the students felt comfortable.

Half of the students (10) said the pleasant aromas did have an effect on creating a comfortable environment and half (10) said it did not. Soft music helps create a comfortable environment for 13 of the students and 7 students said it did not. In *Human Brain and Human Learning* (Hart, 1999), 60 beats per minute music is recommended to create a relaxing atmosphere. Figure 1 shows the total percent of all students who responded that plants, soft lighting, pleasant aromas, and soft music help create a more inviting or comfortable atmosphere. Teachers will benefit from knowing how influential lighting and music are to the classroom environment.

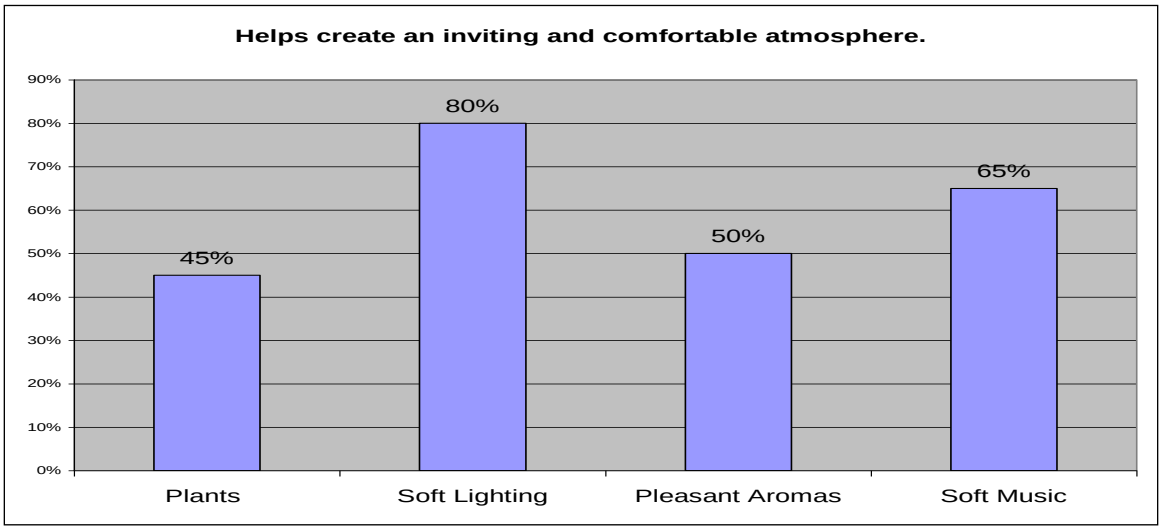

Figure 1. Data from a classroom survey for a classroom environment research project.

The follow-up question was, "Does having a classroom with an inviting and comfortable atmosphere influence how well you stay on task?" Yes responses to this question were at eighty-three percent. Several students stated, "It feels more like home." The results shown in Figure 2 indicate the classroom environment has a significant influence on behavior, and merits great thought and planning before entering the classroom.

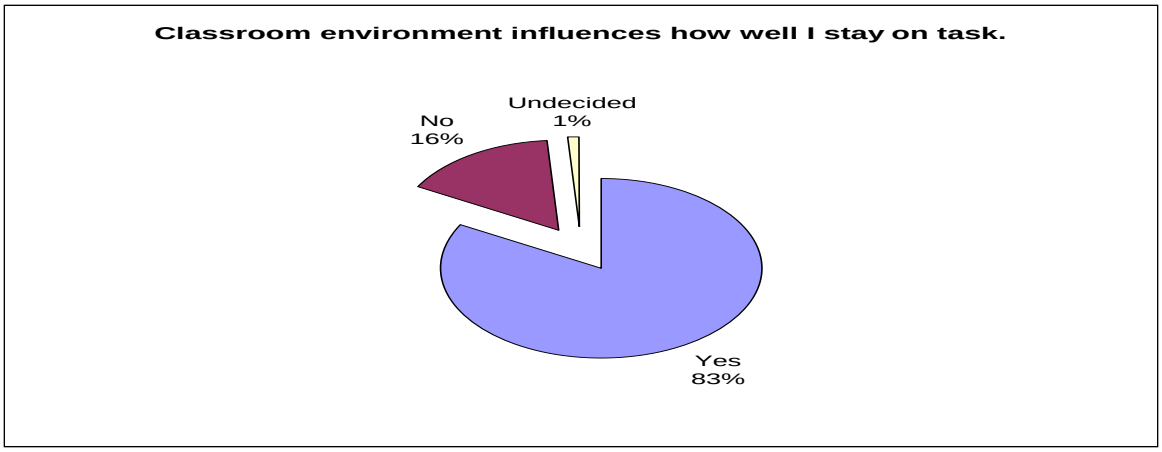

Figure 2. Data from a student survey for a classroom environment research project.

Delving more deeply into the influence of music on behavior, students were asked, specifically, whether the presence of soft music playing in the background during work time helped relax them and lead to more on-task behavior. Results to this question are presented in Figure 3.

Yes	No	Undecided	Total Surveyed
13	7	0	20

Figure 3. Data from a student survey for a classroom environment research project. Music relaxes me and leads to more on-task behavior.

Overall, more than half of the students felt they were more relaxed and on-task when soft music was playing during work time. Some students felt the music was distracting or they did not like it. Other students said soft music makes them feel comfortable and relaxed. Through personal observation, I see the students get a little antsy when a more upbeat song comes on. As the data suggests, music is one way in which teachers can influence their classroom environment to have a positive impact on classroom management.

Conclusions and Recommendations

As my action research suggests, classroom management is much more than a discipline plan. Although a teacher's beliefs and values, as they relate to discipline, are a part of classroom management, I conclude, from my results that other aspects of class structure are very influential. I found the classroom environment to have significant correlation to student behavior, which leads to student success. Teachers can positively influence classroom management by examining the areas of lighting, plant life, music, and aromas in the classroom.

The presence of plants, soft lighting, soft music, and pleasant aromas may help create a comfortable atmosphere conducive to student success. To determine what impact the presence of these things had on behavior, students were surveyed. Results from the survey showed that plants and aromas did not play a major role in establishing the atmosphere. Soft lighting had an effect on establishing a comfortable environment. Eighty percent of students indicated that lighting played a role in creating a pleasant environment. Sixty-five percent of students said soft music helped establish a comfortable atmosphere. These results merit more research into connecting classroom environment to on-task behavior and student success.

I will have plants in my classroom when I become a licensed teacher. Plants give the room a more homey feeling, absorb toxins, and provide oxygen. Some of the lights in my classroom will remain off, and I will use as much natural or full spectrum lighting, as possible. Music may be used during independent work time or during transitions. Knowledge gained from this research project is beneficial to teachers because it lets them know that classroom management is more than discipline.

This study examined four areas in which the teacher can positively influence the likelihood of on-task behavior through areas of the classroom environment. From this research, teachers will gain the understanding that areas of classroom environment such as class aroma,

lighting, music, and plant life, can be examined before stepping into the classroom. These areas can assist teachers in their classroom management endeavors.

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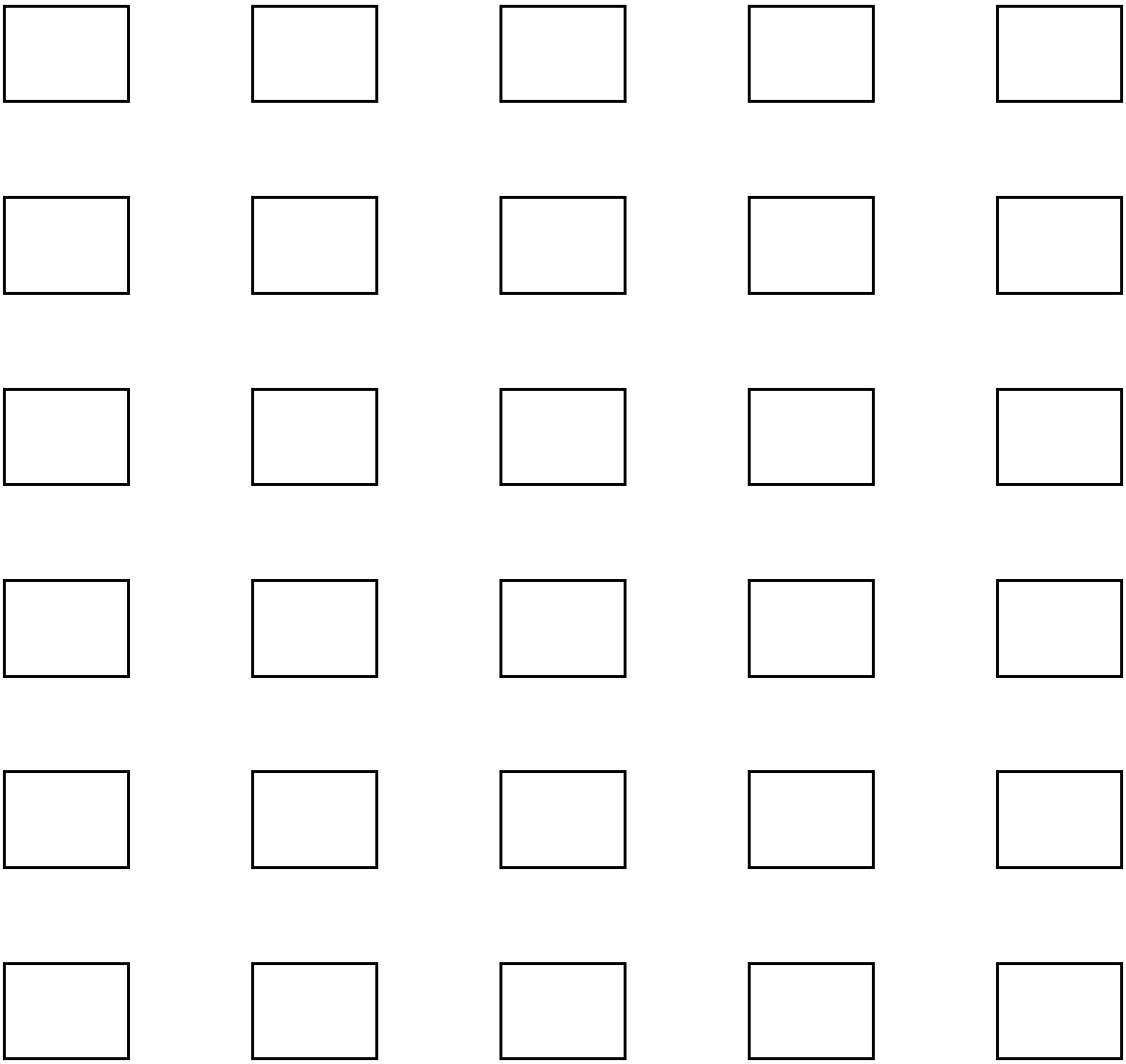
Appendix A: Seating Chart

Seating Chart

Back



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Appendix B: Journal Entry Form

Appendix C: Classroom Environment Research Project

Student Survey

Circle your answer and offer additional information to support your choices.

1. Does the presence of the following things help create a more inviting or comfortable atmosphere?

   Plants YES NO Why?_____

   Soft Lighting YES NO Why?_____

   Soft Music YES NO Why?_____

   Pleasant Aromas YES NO Why?_____

2. Does having a classroom with an inviting and comfortable environment help you stay on task? YES NO

   Explain:_____
   _____
   _____
   _____
   _____

3. Does the presence of soft music playing in the background during work time help relax you and lead to more on-task behavior? YES NO

Explain:_____
_____
_____
_____
_____

Thanks for your help in collection of information for my research project!
Mrs. McBryar ☺

Art at Its Full Potential

Andrea McGuirt

Education 590, Fall 2006

The University of Tennessee at Chattanooga

The Institutional Review Board of the University of Tennessee at Chattanooga (FWA004149) has approved this research project #06-139.

Introduction to the Problem

Introductory art classes, on the secondary level, provide students with the knowledge they need in order to approach art as an artist would, without requiring the same level of technical skill. Students are presented with art knowledge -- art appreciation, history, and technical skill -- without the expectation to excel in skill. More than anything, these students are expected to step out of the analytical, "follow the specific guidelines," left brain classes to which they are accustomed, and step into the right brain world of creativity and free thinking.

Though the idea sounds brilliant, there are a number of students that are stuck in a mind frame of "I'm not good at art." Because of this low perception of their art ability, these students have hindered the learning process for themselves. Often, these students turn in late projects or work that is not up to the students' full potential, or they completely fail to turn in the project. Countless students enter the art classroom defeated due to the fact that they have not previously been labeled "artists." This perceived lack of art ability is so overwhelming that students voluntarily build barriers of negativity and, as a result, they give up before ever beginning a project. Rather than focusing on the project itself, students focus on their "lack" of ability, and the end result falls short of its full potential.

Based on the firm belief that everyone can succeed in art, that the creative process is key to future success, and that art can impact the students' worlds, this study was designed to refocus student mentality. The purpose of this project is to describe the effects of redirecting students' focus from thoughts of negativity to thoughts of success in the art classroom.

Review of Literature

The experience of art, for some, can be an amazing one in which a new world of creative thinking evolves into a realm of possibility. For others, the art experience presents itself as a

mountain that is impossible to climb. When students lack confidence in their art abilities, because they believe they are "not good at it" or that they are "not artistic," they fail to try. This attitude forces them to distance themselves from the possibilities that are literally at their fingertips.

In a survey conducted by art teacher Mary Benton (2000), on her 8th grade class, she found that 59% of her students were not confident in their art abilities. When students believed that they could not draw immediately, they presumed that they had no artistic talent and could not be taught. Such a quick judgment steered the students into a defeated mind frame that art is only for the naturally-talented, and, therefore, art holds no meaning for them. As a result, students make art a low priority on their educational experience, resulting in late or unfinished assignments, or work that is not up to its full potential.

If students truly believe they are incapable of being "artistic," it is easy to understand why they would be reluctant to sit in the art classroom, anticipating the verdict they will receive for a project they believe they are incapable of doing. This great fear forces students to attempt to avoid situations that will uncover their shortcomings, which, in the world of art, is the basis for improvement -- finding mistakes and correcting the problem. Because students become wary of negative feedback, they spend "all their energy diverting the teacher and their classmates from the task of learning - by any means possible." (Barcus, 1993, p. 11). The goal of the teacher, however, should be to erase this fear so that the students' encounter with their art experience frees their spirit as only the arts can do.

According to *The American Heritage Dictionary of the English Language, Fourth Edition,* (2000), success is "the achievement of something desired, planned or attempted."

The feeling of "I can do this" will only come when students participate in a desired activity. Once students have attained some level of success in art, the feeling of accomplishment will spill over to the other areas of their lives (Barcus, 1993). It is the role of the teacher to make students believe that they are truly capable of successfully creating art. In order for this to happen, the teacher must get students excited and motivated about the project. "A meaningful art experience is an experience for which a child has intensity and purpose" (Giles, 1991, p. 1). Students enjoy an activity when they are presented some degree of personal purpose for that activity.

Visual arts have an astounding effect on the artist because they offer students the power of self-expression. This visual expression has the ability to dramatically impact the lives of the artist and the viewing audience. Michael Naranjo has personally experienced this idea of the power of art. Naranjo lost his eyesight after sustaining injuries during the Vietnam War. Though blind, he found that sculpting while recovering from his injuries offered him a new "incredible" way of communication. He believes that through art "you can create, feel; you can succeed" (Stories of hope and courage through art, 1993, p. 2).

Michele Angelo Petrone has also experienced the power of art. Petrone was diagnosed with Hodgkin's lymphoma in 1994. During the high-dose chemotherapy treatments and a stem-cell transplant, he was isolated from society and began to paint watercolors that expressed the impact of this horrible disease on his life. His paintings clearly displayed feelings of fear, isolation, anger and love. In 1996, an exhibition of his work attracted the attention of the medical and psychosocial community. In 2003, Petrone launched his own charitable organization, the MAP Foundation, which focuses on using art to, not only help cancer patients receive personal and emotional well being through the creation of art, but also target medical professionals with the purpose of improving patient care. Paintings are used by the MAP Foundation to inform and

educate health professionals about the complex issues and feelings of the people they serve, of how it feels, in a world where cancer and dying are still very much taboo (Pearce, 2003). While battling cancer, Petrone experienced the healing power of art in his own life. He also experienced the power of art as it impacts an audience.

By engaging students in a project with which they can personally connect, the teacher is offering them the key to impacting their world. Once students realize the effect their work can have on an audience, they become free to be creative thinkers who will find solutions to the problems in their world (Share, 2005). When students become involved with a project that will be on display to the public (rather than creating a project that will simply be stored in a closet at home), they suddenly become aware of the potential of their piece. Through the exhibition of their work, students become leaders and educators in their community and among their peers (Fradella, 2005). Suddenly, the power of art grips students' hearts and they realize their creative freedoms.

Taking the focus off students' ability, or lack of ability, is imperative in the art classroom. Students need to be confident in the fact that they can succeed in art. Students need to realize that their work has the great potential to impact an audience. Students also need to focus on the creative process rather than the artwork itself. "Developing an understanding of how ideas are formulated, the ability to make and implement a plan, and the ability to review and evaluate the world" should be the ultimate goal of the project (Groves & Huber, 2003, p. 186). Students should learn that art can be a vehicle used to control and achieve a desired outcome. Once students have learned this truth, then they will develop higher thinking skills needed for future success. In a study conducted by Columbia University, researchers found that "young people who study the arts show heightened academic standing, a strong capacity for self-assessment,

and a secure sense of their own ability to plan and work for a positive future" (Psilos, 2002, p. 1). It is the creative process, not students' artistic ability, that will carry them into a successful future.

When concentrating on the art process, it is important to provide students with the ability to make their own decisions regarding some details. Choice is empowering. By allowing students to make minor decisions about a piece, students' self-esteem is boosted (Karamanol & Salley, 2005). Along those same lines, it is also important to provide students with open-ended assignments that will allow them to develop higher level thinking skills (Johnson, 2003). No matter what the project, the goal should be student success. Success minimizes negativity and increases learning and creativity.

When students realize that they can be successful in art, that they can impact an audience through their work, and that they can excel in the art process, then they will truly experience the power of art which will, in turn, stimulate their desire to be expressive. Adolescents often feel the urge to "make their mark" on society (Riley, 2001, p. 4). The art classroom can create an environment in which students can channel their drive into productive, impacting communication.

Overcoming students' fear of failing is key to finding success in the art classroom. The National Art Education Association (2006) proclaims that "the act of creating art demands enormous self-discipline that teaches students to learn how to handle frustration and failure in pursuit of their idea. . . It is the human mind operating at its very best" (p. 6).

Data Collection and Results

This study was conducted in a secondary Art 2 classroom in which students were required to participate in an art production activity which proved to be the focal point of the

study. The purpose of the project was to redirect students' focus. Rather than having the project focus on the students' ability and their completed piece, this project was designed to force students to direct their attention to the subject of the piece. Students from Art 2 class were paired with 5- and 6-year-old students from the school's elementary program; the duo worked together to generate the inspiration, theme, and subject matter for the art students' piece. Students from Art 2 then individually created a life-sized silhouette intended to portray the essence and magic of childhood as related to the Art 2 student by his/her 5- or 6-year-old partner. Students were also required to write an "artist's reflection" or short story, true or fictional in nature, based upon the experiences of their partner and relating to the subject of their piece. The climax of the study occurred when both the silhouette and the story, together, were displayed in a public exhibition of the entire class's work (see Appendix A).

With a pairing of this nature, several limitations may have affected the intended study. Students required very careful and personal analysis during this process. Attitude and personality type of students played an important role in this specific study. Because the study was designed to redirect students' focus, it was important to first determine what the attitude and personality type of the students were upon entry into the class. The attitude of students determined how they responded to the study. The personality type of students determined how they involved themselves in the art project. Another possible limitation that could have presented itself during the course of this study was students' perceived ability in art throughout the entire study. As stated earlier, the purpose of the study was to redirect students' focus to thoughts of success in art; therefore, students' perceived ability in art had an enormous effect upon the study. Also, students' personal comfort level when working with their partners may have presented itself as a possible limitation to the study. Had students felt uncharacteristically uncomfortable while

working with their partners during the production of the project, students' ability to transfer their focus to thoughts of success might have been altered. Despite the possible limitations that may have affected this study, it was necessary to research the effects of positive thinking in the art classroom in order to promote students' future success.

This study aimed to answer three questions:

1. Were students successfully removed from their self-reliant comfort zones and challenged to depend on their partners for successful completion of the project?
2. Did students transfer their focus from mastery of technique to communication of the message in a final work of art?
3. Did the finished piece have students' intended impact on the audience?

The majority of data collected for this study was qualitative in nature. On the first day of class, students were asked to complete the Art Survey questionnaire (see Appendix B), which indicated how students regarded their artistic ability at the onset of the project and why they enrolled in the course. Specifically, this survey offered an indication of students' attitude toward art. Because this class was a second level art class, students may have already found themselves to be successful in art during their experience in Art 1. The information offered from this questionnaire found that 10 of the 12 students polled believed themselves to be confident artistically, while only 2 students found themselves to be uncomfortable when asked to draw, paint, or create something. Results are presented in Figure 1. Such findings suggested that the majority of students in this study were self-reliant and positive-minded in relation to art; however, the current direction of their focus needed to be redirected in order for successful completion of their projects.

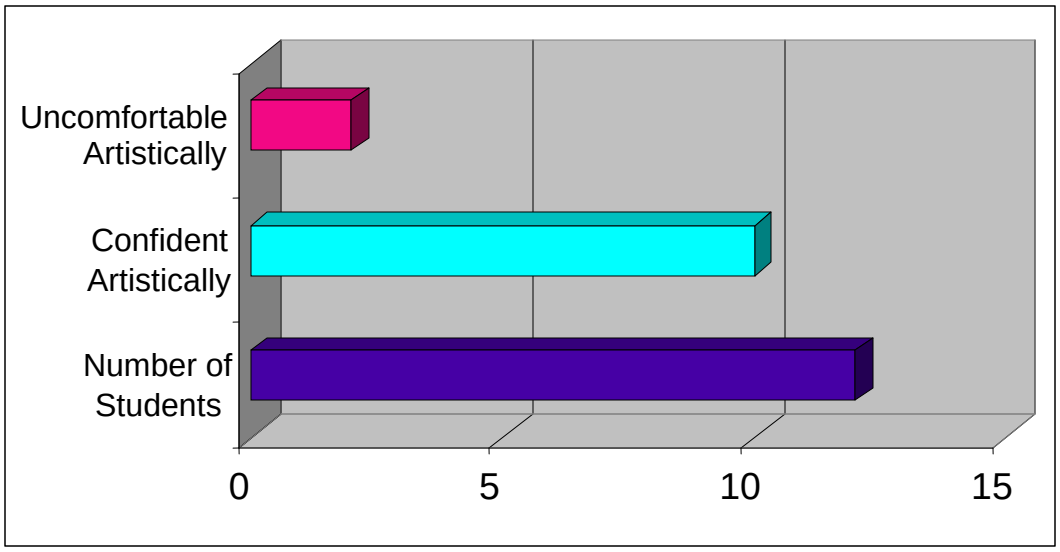

Figure 1. Students' comfort level in art at onset of project.

On the day that the silhouette project was assigned, students were asked to fill out the questionnaire, About My Project #1 (see Appendix C), regarding the assigned project. The answers provided from this questionnaire indicated the subject matter of the assigned piece, students' projected outlook of working with a partner that was so young in age, and the intended impact students planned to generate from their audience.

Midway through the assigned project, students were asked to fill out the questionnaire, About My Project #2 (see Appendix D). The answers provided from this questionnaire indicated how students were coping with completing their projects while grouped with their partners, what students were learning from their young partners, and what students were learning about the creative process while working on this specific piece. This questionnaire was designed to assess whether students' focus was transferring from their artistic ability to the project at hand. Data collected from this questionnaire determined that 75 percent of students were focused on their own capabilities in art, while only 25 percent of students were focused on the subject matter of the project at hand. Of the 75 percent whose focus needed to be redirected, many offered

comments of worry or fear that their partners might hinder the success of their final piece. It was evident, through class observations, as well as indications offered by this questionnaire, that students had successfully been removed from their self-reliant comfort zones and challenged to depend on their partners for successful completion of the project.

At the conclusion of the project, students were asked to fill out the questionnaire, About My Project #3 (see Appendix E). The answers provided by this questionnaire indicated if students felt that their projects were successful, with regard to impacting an audience, how they desired the audience to respond to their piece, and how their finished pieces would be different had they worked on the project alone. Due to the age of their partners, 25 percent of students believed they were hindered in the creation of their pieces by being paired with such young partners, while 75 percent of students felt as though they were at an advantage in successfully completing the project while being paired with their 5- or 6-year-old partners. At the same time, 67 percent of students found it easy to accomplish the project with their partners, while 33 percent believed the pairing to be a difficult aspect of the project guidelines. Though students were not in agreement regarding the necessity of being paired with such a young group of partners, 100 percent of students polled believed their pieces to be highly successful, with regard to the desired outcome they intended their pieces to have on an audience. However, through active observation, the researcher found that, at the point of completion of the project, but prior to the exhibition of student work, only 92 percent of students had successfully transferred their focus from their own personal artistic capabilities to the project at hand. Results are presented in Figure 2.

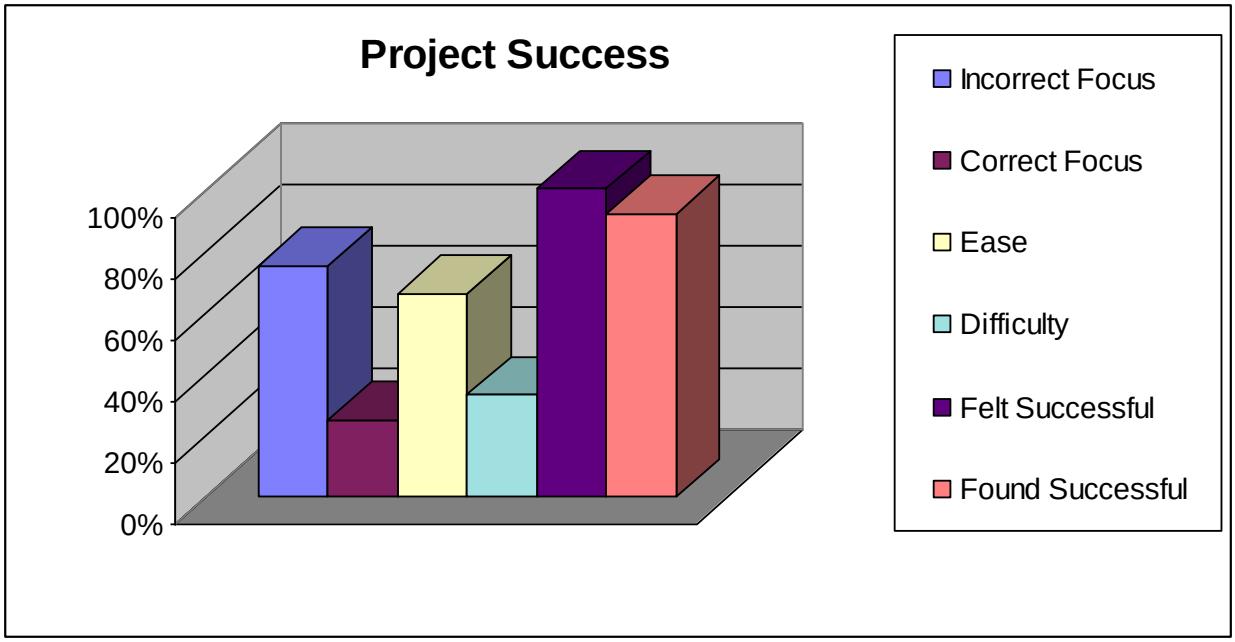

Figure 2. Results of students' success.

On the afternoon of the exhibit, those in attendance were asked to fill out the Audience Review form (see Appendix F). The answers provided from this form indicated if the audience understood the theme of the exhibit, how the audience reacted to the exhibit, and in what way specific pieces impacted members of the viewing audience. Thirty-seven adults, 18 years of age and older, voluntarily completed the Audience Review form. Of those participants, 76 percent stated they strongly agreed that the exhibit clearly portrayed a specific theme or message, 22 percent agreed to the same statement to a lesser extent, while 2 percent offered no opinion regarding the topic. Results are presented in Figure 3. Strikingly, 100 percent of those polled stated that they were impacted or affected by either the exhibit as a whole, or by a specific piece. Such findings clearly confirmed that students had successfully impacted the viewing audience. When ask to elaborate on the impact or effect given by the exhibit, responses were overwhelmingly personal and nostalgic of the freedom, simplicity, and innocence of childhood.

Such remarks by the viewing audience confirmed that viewers were touched and enthused by the creations of the Art 2 students.

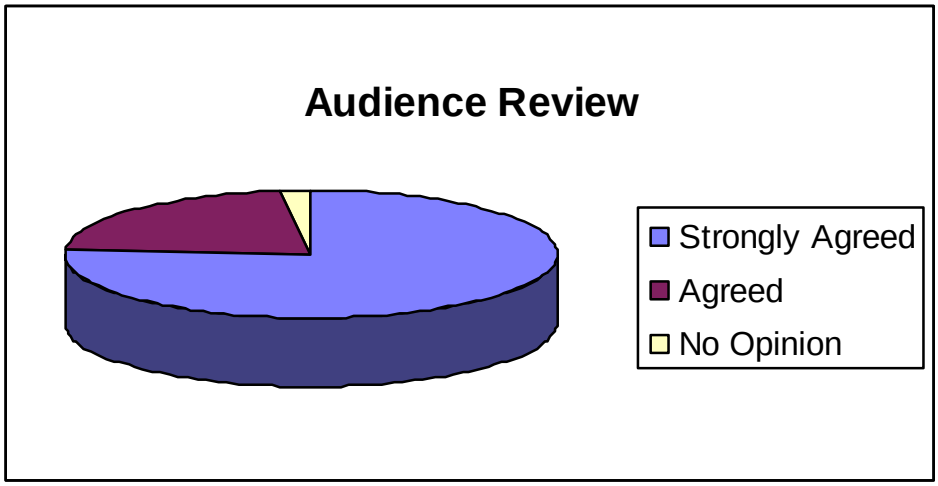

Figure 3. Audience response to exhibit.

Finally, active participant observations provided an effective means of data collection for this study. During the course of the study, the researcher was privileged to observe when, where, how, why, and if students successfully transferred their focus to the task at hand. As previously stated, at the completion of the art project, but prior to the exhibit, eight percent of students had not successfully redirected their focus to the project at hand. However, during the opening reception for the student exhibit, the one remaining student who had not successfully made the focus change during the process of creating his piece, was clearly and outwardly affected by the fact that his piece was the only piece in the exhibit that was not receiving a positive audience feedback equal to that all of the other student pieces. With such realization came, not only an apology for having disappointed his 5-year-old partner, but also an apology for having not offered his best effort in the completion of the piece. Most surprisingly was the fact that this student admitted his shortcomings while promising himself, his mother (who was also in attendance), and his art teacher, to truly apply himself on future art projects in order to attain his

full potential. At that moment, the one remaining student offered what the researcher had been hoping so desperately for: an obvious transfer of focus. As the words spilled from his lips, the researcher realized that she had experienced a moment of truth -- the one missing sheep had returned to the fold -- and there was an enlightening moment of student learning. Interestingly enough, this student had originally indicated that he was confident in art, suggesting that he needed no change of focus; however, his actions proved otherwise.

Conclusions and Recommendations

Results of this study were conclusive to the fact that all students can indeed succeed in art, but, first, they all must personally experience the power of art, in order to do so. Believing that art is key to future success, the researcher poured her heart and soul into every aspect of this study in order to determine if her beliefs were accurate. Data confirmed that, when a transfer of focus has occurred, not only can 100 percent of students succeed in art, but also 100 percent of students, even those with a self-perceived lack of art ability, can impact an audience through their creations.

Sadly, not all schools receive sufficient funds for the visual arts. Many schools only offer a minimal choice of art classes for their students while being able to only offer enough wages for one part-time art instructor for the school's entire student body. In some cases, schools may offer art, but only provide one dollar per art student, per art class, for supplies in that class. In fact, art programs are among the first to be discontinued, if funding is low in a school system. Financial limitations often hinder art instructors in fully offering the best experience for their art students. There are professional organizations that firmly believe in the importance and need of art in the lives of K-12 students. Organizations like the National Art Education Association promote art education through professional development, service, advancement of knowledge, and

leadership. Still, if local school boards do not see the need to fund art in schools, then it is the students who are robbed of experiencing the power of art in their own lives.

Professional instructors in the field of art should set their expectations high for their students. Instructors should not only see the need to educate their students, but to also serve as their leader in terms of promoting art in the surrounding community. Teachers should strive to motivate and inspire their students to impact the community through their art creations. By doing so, educators can empower their students to become future leaders of the art community. Through the implementation of higher order strategies in the classroom, students can be conditioned to strive for their fullest potential in order to gain a desired response from their audience. Such strategic thinking can strengthen their leadership skills and promote positive responses in the community, concerning the world of art and how it is perceived.

There is not one specific grant offered for further research under the classification of the nature of this particular research project. The United States Department of Education (2006) does, however, offer monetary grants for professional development for art educators, as well as a grant that is designed to enhance, expand, and strengthen art instruction in elementary and middle school curricula in order to improve "students' academic performance, including their skills in creating, performing, and responding to the arts" (Program description, ¶ 2).

The use of technology in the art classroom can be a highly effective teaching tool. Though students were not required, nor even encouraged, to use technology in the creation of their silhouettes for this specific research project, the researcher was able to introduce students to the project through the venue of technology in the classroom. Introducing students to various artists, art eras, and art forms, through the use of technology, has proven to be a profoundly

successful way of gaining and retaining student attention while encouraging students to participate in the technological era in which they live.

Still, students will not grasp the power of art simply by hearing about it or viewing it. No, they must truly experience its power in order to fully understand it. Sadly, many students enter the art classroom and stumble through the motions, held back by barriers of negativity. Believing themselves to be less capable than their classmates, they succumb to negative beliefs regarding their art ability. In order to fully experience the power of art, students must understand that everyone can succeed in art, that the creative process learned in the art classroom is key to future success, and that art can impact the world. The bottom line is that students will never experience art at its full potential until they change their focus.

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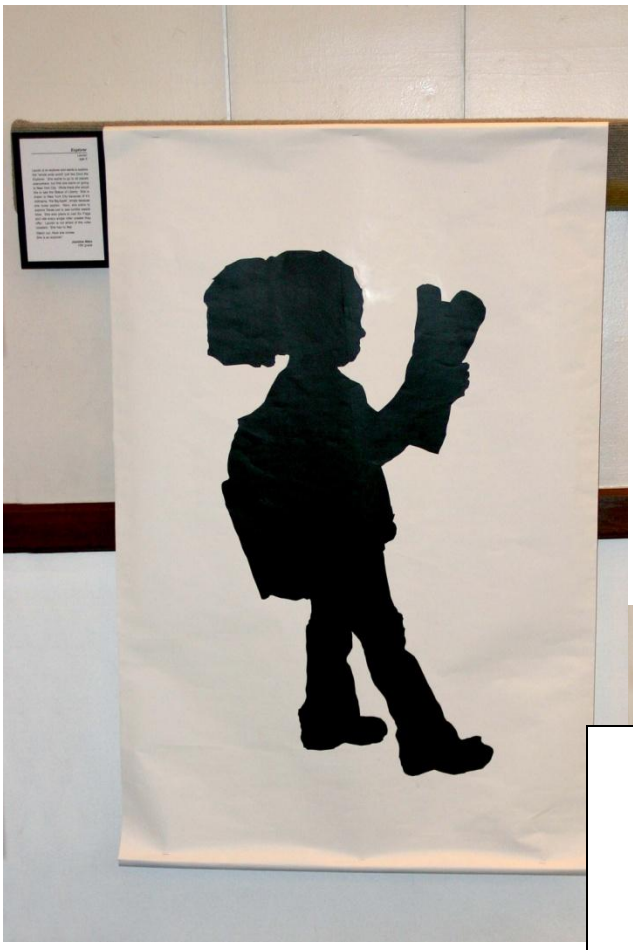
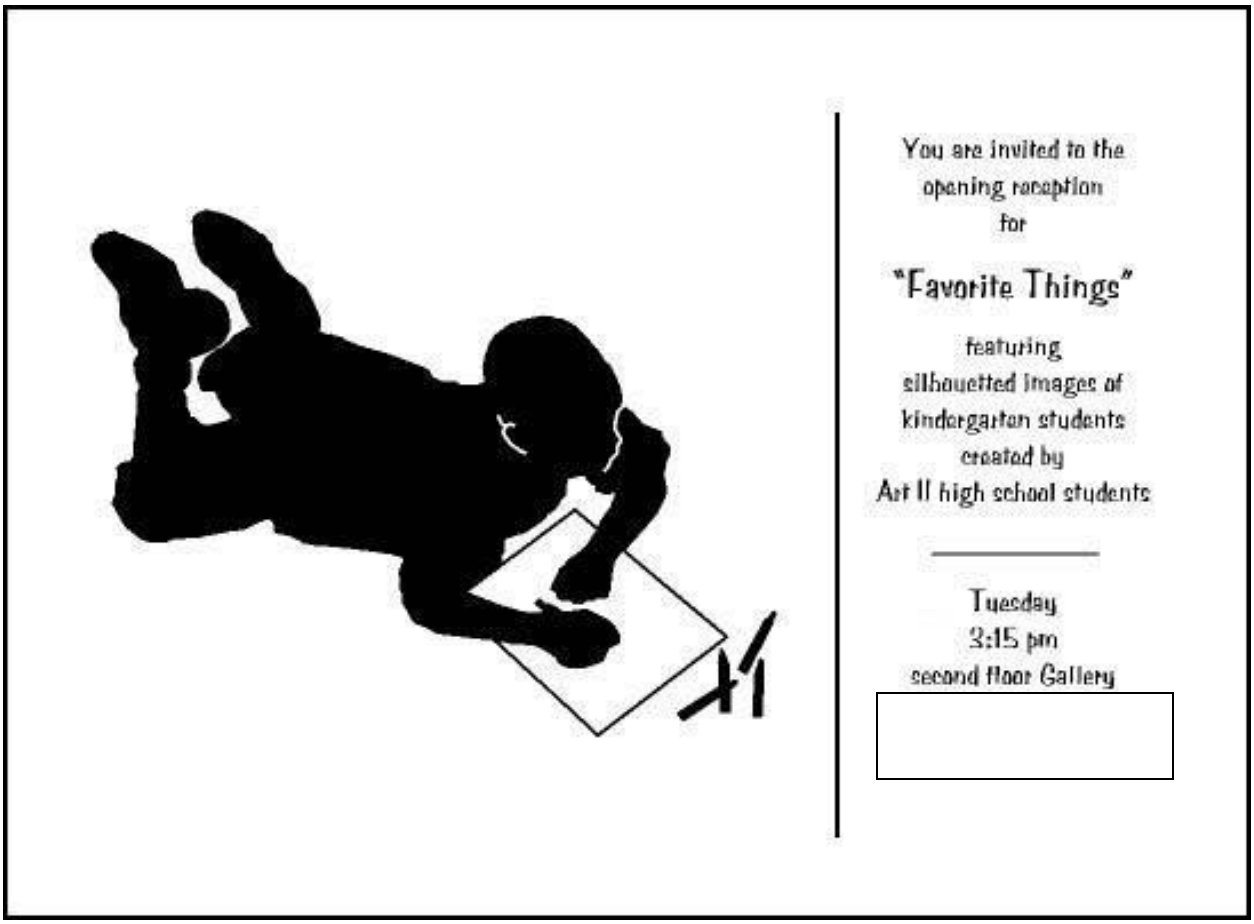
Appendix A: Photos of Student Work Taken at Exhibition



Invitation to opening reception of exhibit. (Artwork created by student.)



Appendix B: Art Survey

Art Survey

Circle the answer that best describes you.

1. I have previously taken an art class or art lessons.	Yes No
2. I am enrolled in art class because I enjoy art.	Yes No
3. I am enrolled in art class simply because the other elective options seemed too difficult or boring.	Yes No
4. Art is an important subject in my education.	Yes No
5. I am confident artistically and am good at drawing, painting, etc.	Yes No
6. I am uncomfortable when asked to draw, paint, or create something.	Yes No
7. I feel confident that I will make a ____ (grade) in this class.	A B C D F

Appendix C: About My Project (#1)

About My Project (#1)

Answer questions in complete sentences.
Be brief but thorough.

1. I am excited to work with my 5 / 6 year old partner because . . .

2. I am NOT looking forward to working with my 5 / 6 year old partner because . . .

3. Though I have not yet interviewed my 5 / 6 year old partner, I would like the theme of my piece to revolve around the idea of . . .

4. I plan to make the subject (or theme) of my piece visually clear to my audience by . . .

5. I want my audience to be impacted (or touched) in this way . . .

Appendix D: About My Project (#2)

About My Project (#2)

Answer questions in complete sentences.
Be brief but thorough.

1. I am finding it ***difficult*** or ***easy*** to work with my 5 / 6 year old partner because . . .

2. My 5 / 6 year old partner has helped me . . .

3. The story I am writing with my partner, to be displayed beside my piece, is about . . .

4. The subject (or theme) represented in my piece has made me realize . . .

5. By working on this project, with a 5 / 6 year old partner, I am learning . . .

Appendix E: About My Project (#3)

About My Project (#3)

Answer questions in complete sentences.
Be brief but thorough.

1. My piece is now complete and I feel it will be ***successful*** or ***unsuccessful*** because . . .

2. At the exhibit of my piece I want the audience to . . .

3. Working on this project with a 5 / 6 year old partner showed me . . .

4. I felt at an ***advantage*** or ***hindered*** while working on this project with my partner because . . .

5. Had I completed this project alone, (without my 5 / 6 year old partner), it would have been different in this way. . .

Appendix F: Audience Review

audience review

Please circle the number that best describes your feelings about tonight's exhibit.

1. This exhibit clearly portrayed a specific theme or message.

strongly disagree		agree		strongly agree
1	2	3	4	5

2. I was confused or uncertain regarding the theme of tonight's exhibit.

strongly disagree		agree		strongly agree
1	2	3	4	5

Additional Comments:

3. In my opinion, the underlying theme or message of this exhibit is . . .

4. When viewing this exhibit I felt . . .

5. When viewing this exhibit I learned . . .

6. One particular piece *(please describe piece)* impacted me in this way . . .

Virtually Completed: The Implementation and Implications of Georgia's Virtual High School relating to a Local Georgia High School

Rachel E. Murray

Education 590, Fall 2006

The University of Tennessee at Chattanooga

The Institutional Review Board of the University of Tennessee at Chattanooga (FWA004149) has approved this research project #06-136.

Introduction to the Problem

While university-level distance education emerged in the United States at the end of the 19th century, the development of secondary education available from a distance was a little slower in coming. Recently, however, with the advent of the Internet, distance education has become a much more widely-available and viable option for all kinds of educational institutions which would have otherwise shunned the idea of correspondence courses. Many states in the U.S. have implemented what are referred to as "virtual schools," wherein students are given the opportunity to take courses that otherwise would not be available to them, such as specialized advanced placement (AP) classes, or simply to take (or retake) core classes in a unique way which they may tailor to their particular time constraints. These classes are altering the educational landscape by creating diverse classes with greater availability to students with varying needs.

With these new opportunities, however, come myriad challenges. The availability of technology has to be addressed, along with teacher training, student motivation and achievement, and issues of funding. On the whole, virtual schools seem to be experiencing a great deal of success. The availability of online courses is growing at breakneck speed and Georgia is not to be left behind. In the fall of 2005, Georgia Virtual School, a school serving grades 9-12, was put into place. Since then, many new courses have been added and enrollment has doubled. Students at a local, rural high school are among the students who currently have access to this program. The examination of the program leads to queries regarding the effectiveness of the program and how best to continue whatever successes it may be experiencing.

Review of Literature

Although a great deal of research exists on distance education as a whole, the information

available on K-12 virtual schooling is far less abundant (Roberts, 2004). The majority of information available on virtual instruction is related to postsecondary institutions rather than primary and secondary level programs. Because the implementation of these schools is relatively new in Georgia, there is not an abundant resource of statistics to be accessed for that specific state.

With the limited information available on the Georgia Virtual School, researchers are having difficulty drawing conclusions about the status of the program. Watson and Ryan (2006) report that, "Because the number of online students is small and cannot be considered a random sample of students across the state, it is too early to draw comparisons between the online classes and face-to-face classes" (p. 56).

Research on other schools is generally positive and indicates that virtual schooling is beneficial to the students who are able to take advantage of it. Melnick (2002) reports that it is possible to serve a greater range of students through e-learning, thereby increasing educational equity among student populations. The implementation of a virtual school system allows more students greater access to a wider range of courses, including those students who are in rural areas. With this option, there is the possibility of a global classroom that democratizes knowledge, thereby eliminating socioeconomic, geographical, and cultural barriers. It is preparation for students to compete in what Gaines (2002) refers to as the "fast-approaching age of the 'knowledge economy'" (p. 63). The difficulty that Melnick (2002) sees in attaining this equity lies in the current educational model within our schools. Recognizing this new medium as a unique entity requires that schools set up a different model related to the particulars of online education. The construction of these classrooms requires attention be paid not only to content, but to formatting, layout, content, and user interaction.

The problem lies not in acknowledging these differences, but, rather, in making sure that instructors are able to master the resources they are using. Greenway and Vanourek (2006) report that less than an estimated one percent of all teachers in the nation are trained as online instructors. Roberts (2004) tells us that most educators see technology, in general, as important to the process of instruction, but there is some disagreement among them as to whether it is superior to face-to-face interactions. Gaines (2002) reports that many teachers believe such interaction is essential to learning. Of course, this issue is directly related to the quality of instruction, both in the classroom and online. Greenway and Vanourek (2006) note that, in addition to the greater dependence on technologies that these teachers must learn to use effectively, virtual schooling may allow for more individualized instruction. It also presents more complicated issues, from a logistical standpoint, due to the wide geographical distribution of students. This being the case, it is important that educators receive the proper training necessary to conducting a well-run virtual classroom. It is further helped by the fact that states such as Georgia are implementing their own state-run schools, effectively limiting dissemination to that area, alone, and keeping the schools under the same guidelines as others in the state and allowing for more uniform and structured learning.

In addition to the challenges faced by the instructors, the students must adapt to the new medium. In interviews with virtual school employees, McLester (2002) found that not all students were reading the material that was being presented to them. And, while initially it was believed that AP classes would be most in demand, core courses seem to be taken more frequently. McLester (2002) points out that student success in online courses is very much related to the desire to learn the content, but that time management skills and self-motivation are keys to good performance in these classes. Students who will not produce work, even when

under the watchful eye of an instructor, are less likely to prompt themselves to complete assignments when there is no corporeal essence to which they feel directly accountable.

Aside from the human component, there are still issues to face. Greenway and Vanourek (2006) report that most virtual schools receive substantially less funding than their traditional counterparts—estimates are 20 to 30 percent less. McLester (2002) states that the main challenges to implementing a virtual school have less to do with teachers and students and more to do with funding and technology. According to both Gaines (2002) and McLester (2002), one of the biggest problems facing all virtual schools is the need for enhanced bandwidth. Further complicating this situation is the need for more advanced technological resources within the schools themselves. McLester (2002) finds that many schools have outdated infrastructures and lack the tools to create the proper software and develop courses. It is a Catch-22: the increasingly complex technological applications needed for virtual schools to reach their full academic potential require greater bandwidth to support them. Limitations on the radio spectrum serve to restrict the access and availability of these applications in the traditional setting of a brick-and-mortar school. Greater bandwidth will be of no use, however, to students without the hardware necessary to facilitate high-speed access.

Data Collection and Results

In the summer semester of 2005, 224 students were enrolled in the virtual school, and, of those students, 142 successfully completed their courses. In the fall semester of 2005, there were 634 students, 383 of which attained successful course completion. In the spring semester of 2006, there were 1,285 students enrolled in virtual school, 835 of which successfully completed their courses.

Data for this study was taken from the 2,143 students enrolled in the Georgia Virtual

School during the summer and fall semesters of 2005 and the spring semester of 2006. Their enrollment numbers and completion rates were examined, along with their reasons for dropping courses, if they had done so. There is no identification of names, whatsoever, among the data collected. The data available from the virtual school was compared to data obtained from the 2003-2004 annual baseline report (the last available) which evaluates the performance of local high school students, overall, in their smaller learning communities.

Based on the literature, the hypothesis is that student performance should be at least as good in the virtual school as it is in the traditional brick-and-mortar school, if not better. Enrollment in the virtual school classes is given, along with passing rates (see Figure 1).

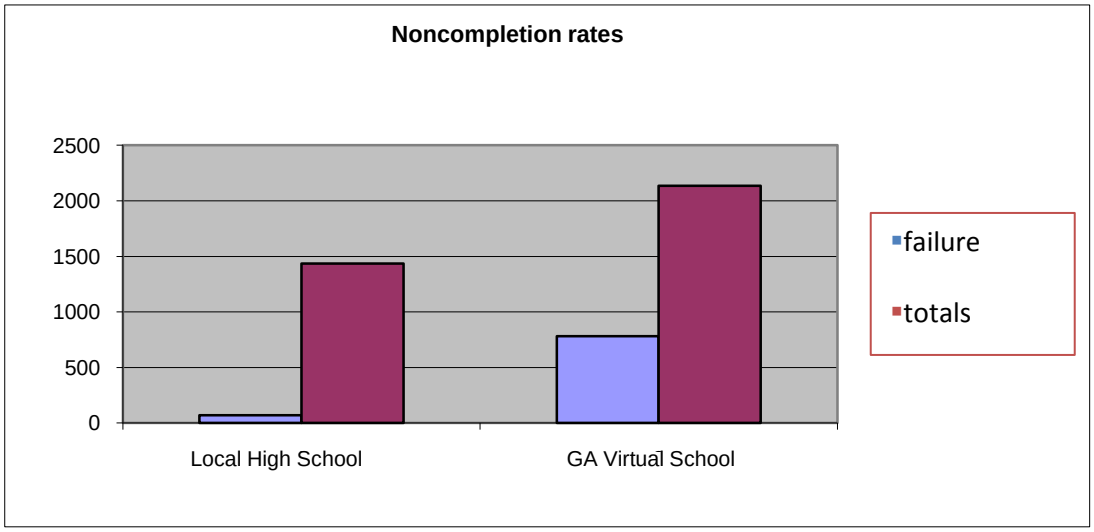


Figure 1. Total rates of noncompletion in a local high school as compared to the Georgia Virtual School (sources: Educational Technology Cooperative (2006), and Evaluation Group, 2004.

The graph indicates that, while 69 of the 1,436 local high school students did not pass (approximately 4.8%), 783 of the virtual school students did not pass (approximately 36%). Failure rates, therefore, were higher in the virtual school than in the traditional school. These statistics are somewhat misleading, however, because failure, as defined by the local high school statistics, included student retention in the grade level, which means a greater number of classes,

overall.

In comparing the student/teacher ratio of both schools, the virtual school rates are smaller. In the local high school, the student to teacher ratio is 18:1, whereas in the virtual school, the ratio is significantly less at approximately 10:1 (see Figure 2).

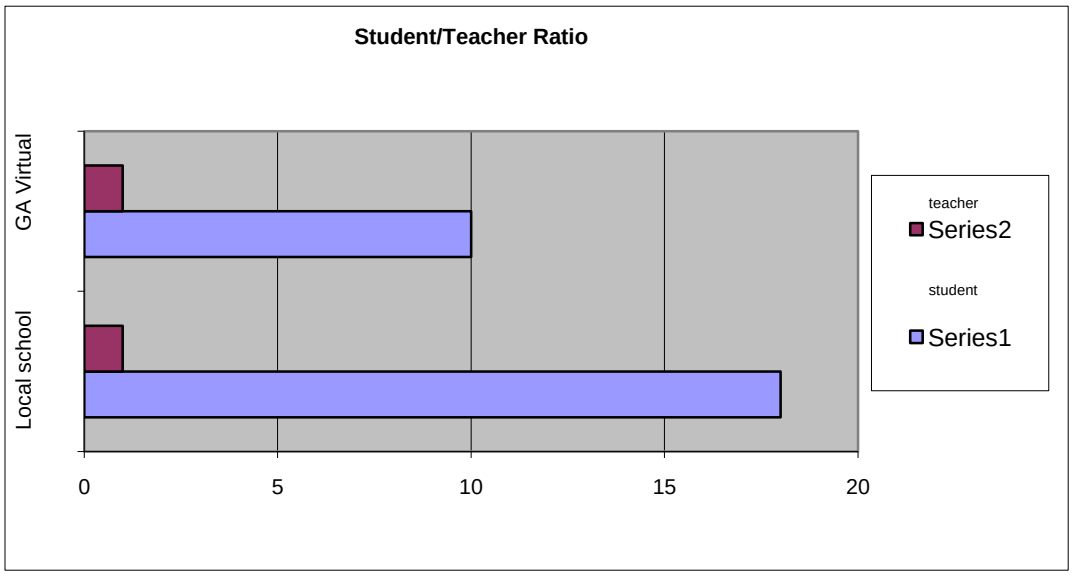


Figure 2. Student to Teacher ratios at a local high school compared to the Georgia Virtual School (sources: Educational Technology Cooperative, 2006, and Evaluation Report, 2004.)

The student/teacher ratio is almost half for the virtual schools, but it is important to take into account that the 126 teachers working in the Georgia Virtual School are part-time teachers rather than the full-time teachers working at the traditional schools. All teachers in the virtual program are highly qualified as defined by No Child Left Behind (NCLB). The Georgia State Board of Education requires that all virtual school teachers complete a training course specific to that type of instruction. Trainees who complete the program are then given a mentor before being able to teach courses on their own. At the local high school, all but two of the teachers hold at least a bachelor's degree, and, in accordance with NCLB, are deemed highly qualified, as of the 2005-2006 academic year.

Conclusions and Recommendations

Conclusions

Based on the information currently available, it is premature to make any definitive statements regarding the schools. It would appear, however, that, in addition to the requirements placed on the traditional school, such as end-of-course tests and AP exam scores, the virtual school is being monitored with additional teacher requirements. There are more teachers to serve smaller classes, and each student receives individualized attention based on direct written communication with the instructor. For a program in its infancy, there are significant measures of quality control being placed on the virtual school project. It is being made available to all students with facilitators working in local schools. Its implementation has allowed for expanded curriculum offerings including more advanced courses and courses for language minorities.

Recommendations

Georgia continues to make great strides as it continues with its virtual school (Educational Technology Cooperative, 2005). Expanding the scope of the school will require more extensive inquiry than what is available. More information is necessary in order to determine specific strengths and areas for improvement which are essential to developing an effective, long-term strategy. It would be beneficial for Georgia to evaluate the present state of technology in all its schools so as to conclude where the most assistance is needed and assure the close of the "digital divide." The technology infrastructure must be capable of handling the increasing number of students enrolling in the virtual school.

The first external evaluation of the Georgia Virtual High School is slated to begin during the 2006-2007 school year. It will be better to make conclusions about the eventual state of the school and its operation upon evaluation of student populations served and other defining factors. As it stands, however, growth of the school is substantial and shows promise.

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Real-World Problems in the Mathematics Classroom

Robert Richards

Education 590, Fall 2006

The University of Tennessee at Chattanooga

The Institutional Review Board of the University of Tennessee at Chattanooga (FWA004149) has approved this research project #06-216.

Introduction to the Problem

While I was working at a local high school as a tutor in the spring of 2005, I noticed that students did not care about mathematics, especially geometry. This tutoring program was a part of a grant-sponsored program at The University of Tennessee at Chattanooga, to help the students prepare for the Gateway Algebra test and to be there as classroom support for the teacher. I noticed a strange phenomenon: the students did not want to learn. They would rather sleep or do nothing, than learn geometry. I sat down and explained problems to them, but all they wanted was the answer. They had no interest, at all, in math. They just did not care.

This is when I discovered that they did care when problems were directed at things that they cared about. They liked problems that included aspects of their lives. They wanted to solve problems to which they could relate, not problems that are regular and boring. This is what I discovered, and believe to be true. I believe that we, as teachers, need to include aspects of the students' lives in our problems. This can work in the mathematics classroom or any classroom, for that matter. Students need to want to learn. We cannot force them to learn, but when their interests are included, and related to the materials being taught, they will care about the material.

Teachers need to include aspects of the students' lives to bring the material to a real level to which the students can relate. We need to get the students involved by using real-world problems that relate to their lives and in which the students are interested. This will create interest and help them want to learn.

The purpose of this study is to describe the effects of using real-world problems to teach problem solving in the middle school mathematics classroom.

Review of Literature

There are many different articles and theories on using real-world problems in the mathematics classroom. This is a subject that is being more and more included in the mathematics curriculum and textbooks. Constructivism, by John Dewey, says we need to engage students in a variety of ways (Berry, Reed, Ritz, Lin, Hsiung, & Frazier, 2004).

Berry, et al., state that schools should provide students with hands-on, open-ended, real-world problem-solving experiences that are linked to the curriculum. They also suggests that "people construct knowledge and understandings based on what they already know and believe." They also believe in using five strategies: (a) relating, which is learning in the context of one's life experiences or preexisting knowledge; (b) experiencing, which is learning by doing or through exploration, discovery, and invention; (c) applying, which is learning by putting the concepts to use; (d) cooperating, which is learning in the context of sharing, responding, and communicating with other learners; and (e) transferring, which is using knowledge in a new context, one that has not been covered in class. This is a great article on improving mathematics and science achievement through these ways that is aligned with what I want to prove. Another article states that we need to use real-world data in the classroom that can be analyzed and graphed by students using spreadsheets (Francis, 2005). All of these articles and the National Council of Teachers of Mathematics suggest using real-world problems and data to help students develop problem-solving skills.

Stanley Pogrow wrote an article for Phi Delta Kappan about his "Supermath" program (Pogrow, 2004). This is an alternative approach that helps improve math performance for Grades 4 through 9. This also offers ways for school districts to meet the challenges set by No Child Left Behind. He developed an approach that increases basic skills, problem-solving ability, test

scores, and interest in math. He set up materials that are challenging, creative, and inventive. He uses graphics and animation to intrigue students and catch their attention. He wanted to use math problems that are connected to the real-world experience of the students. He developed an approach that is based on the experiences and modes of learning in which the students are interested. He did not want to compromise on the teaching, but to develop a way for students to be interested and care about learning about mathematics. He set up situations, like spies, that can only solve their problems by using mathematics skills. The hero cannot save the world without mathematics to handle all the situations that arise. It is ingenious, exciting, and really seems to work. He has multiple ways and programs set up that interest students, and uses humor and experiences to engage them to solve mathematical problems.

Another article suggests using block-scheduling better by "actively creating knowledge from their existing knowledge base, beliefs, and personal experiences (Hackmann, 2004). It states that "contructivists advocate learner's participation in context-bound, real-world problem solving and call upon students to engage in metacognition" (Hackmann, 2004). This is a way to get the students involved. You have to bring their background to the real-world problems to get the students involved.

The last article cautions against using only real-world problems in the mathematics classroom (Lubienski, 2001). She cautions against using real-world situations that incorporate mathematics, science, social studies, etc. She feels that this integration concept becomes a potpourri of problems that are "loosely held together" by the concept being studied. She feels that math is not using the concepts to build on one another like they should. She also cautions that lower socioeconomic students would have problems if the curriculum is not tailored to what they know. You would have to use real-world problems that take into account the backgrounds

of your students. A teacher should not ask a lower economic student a real-world situation unless they knew what it is and how to deal with it.

Teachers have to have real-world problems that involve the students' interests, and reinforce the concepts being taught. Teachers cannot teach the real-world problems with the basics; we have to incorporate real-world problems in the mathematics classroom that grab the students' attention and teaches them the basics. The "Supermath" approach that uses real-world situations that build on the basic principles, and includes students' interests, really demonstrates what should be taught. You cannot move to the next section until you finish the basic part first. It is like building a brick wall. You start at the bottom and keep building from the bottom up to the top. Teachers need to use real-world situations and problems to build the students up so they are math learners for life.

Data Collection and Results

This study evaluated 40 eighth-grade students in an Algebra I class during a student teaching placement. There were 23 female students and 17 male students. There were some gifted students and some inclusion students in each block. The students seemed to pay attention to the normal lessons, but they really paid attention when the teacher/researcher mentioned a pop singer that was noticed on one young lady's notebook. The teacher/researcher connected a two-step equation to this singer. The girls really started paying attention and wanted to get involved in the discussion. Some of the guys asked, "Why him? Couldn't you pick someone else, like this guy?" This really got the class more interested, and the students could now see why learning this material was important, and how it related to their lives. This is what the research is all about. The students could see how the material related to their lives and this really got them interested in the subject.

The teacher/researcher provided an interest inventory (see Appendix A) to gauge other things the students were interested in and then designed a lesson based on that information. The students responded well when the teacher started using their interests in the lectures. The teacher used references to a show on MTV, called "Pimp my Ride," and the students looked at the teacher like he was crazy, but they started to pay attention. The teacher discussed how they could design a new dashboard for a car, but they needed to know the area and perimeter of the dash before they could put in what they wanted. The teacher explained that even auto mechanics needed a basic understanding of mathematics or they would not be able to design certain upgrades for the automobiles on the show. This really caught their interest.

Another type of data collection used was a survey (see Appendix B). It asked the students if they knew what real-world problems were. Most knew that real-world problems had to do with things in the "real-world." One question asked if they would like to solve problems that related to their own lives, and this was well-received. A third question asked whether they would pay attention if math was tailored to their lives. Another question asked if they would like to design math problems for others to answer, and all the students liked this idea.

The final data collection method was a pre-test and post-test that was delivered to the students before and after a lesson that was taught by the teacher using real-world examples gathered from the interest inventory (see Appendix C). The test items include certain singers with which students are familiar, and some two-step equations that have to be solved by the students with information about each person. Some of the students did not like the choices, so they wrote in their own people to make the questions even more personal for them.

Results

Results of the interest inventory were as expected. The students filled out each inventory with certain popular musicians and sports figures such as Chris Brown and Lebron James.

The survey was scored on a response Likert scale. The students were asked to respond with strongly agree (SA), agree (A), uncertain (U), disagree (D), and strongly disagree (SD), with 3 questions pertaining to the relevance of using real-world problems in the mathematics classroom. The other questions were simple yes and no responses. The following point values were assigned for responses: SA = 4, A = 3, U = 2, D = 1, and SD = 0. A high point value states that the students would like to have real-world problems in the classroom. The results are presented in Figure 1. The mean for question 2 is 3.25. The mean for question 3 is 3.325. The mean for question 4 is 3.6. Most of the students would like to have real-world problems in the mathematics classroom that relate to some aspect of their lives and something in which they are interested.

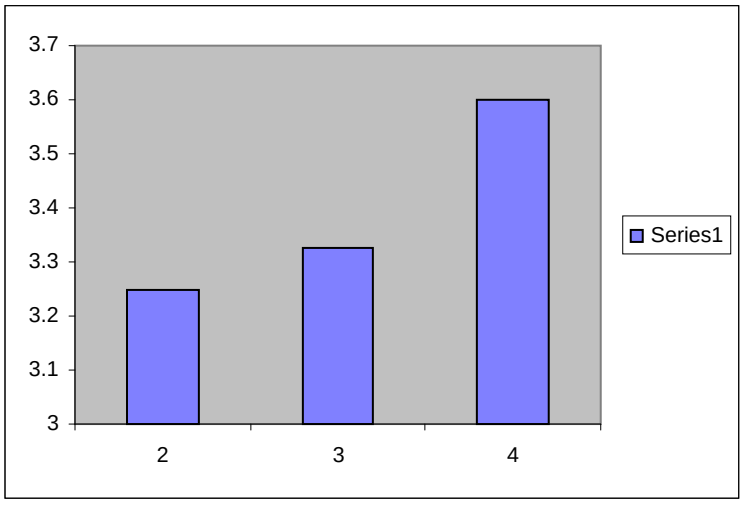

Figure 1. Survey question results.

The next data collection method used was a pre- and post-test. Students were given the test before and after a lesson, as taught by the teacher/researcher. Results from the pre-test were

as expected. The students did not do as well because they had not yet studied the material. The students did not know the properties that were going to be discussed. The teacher related these to certain aspects of the interest inventory to try and make the topics more interesting. As for learning the associative property of addition, how can that be related to students' lives? The teacher used who you associate with in the real world to help develop interest in the property and relate it to their lives. It seemed to work well. Figure 2 presents the pre-test results. The mean score was 61.175 on a 100-point scale. The students had not yet covered the material when they took this test. The post-test results show a marked improvement. The scores improved and the mean for the post-test was 87.55. That is an improvement of over 25 points. The post-test results are presented in Figure 3.

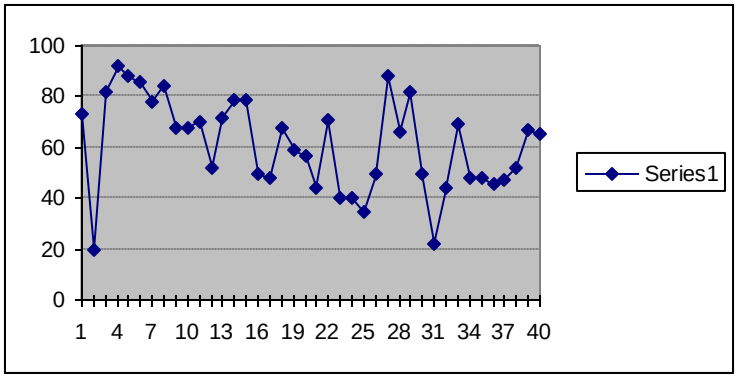

Figure 2. Pre-test results for all 40 students.

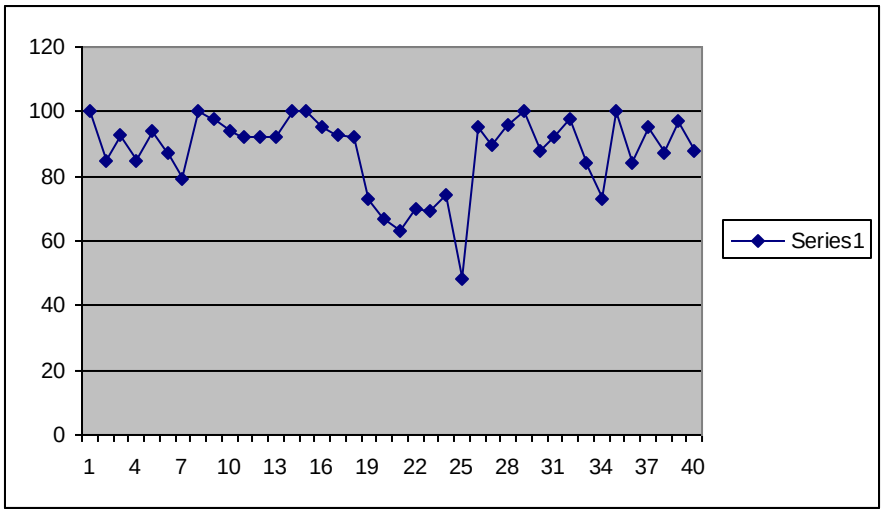

Figure 3. Post-test results for all 40 students.

Figure 4 presents the pre-test and the post-test in a comparison graph. After the students learned each Algebra property, and had it related to an aspect of their lives, and using people in which the students have an interest, the test results show a dramatic improvement. This demonstrates that the students do like to have mathematical concepts related to aspects of their personal lives. It does build interest and helps motivate the students to want to learn.

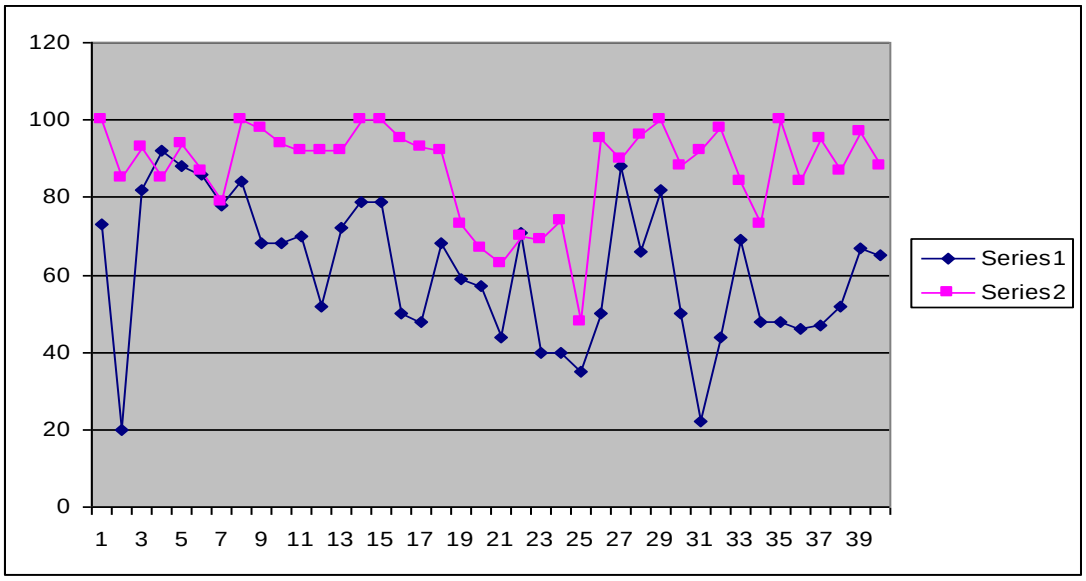

Figure 4. Pre-test and post-test comparison.

Conclusions and Recommendations

The purpose of this study is to describe the effects of using real-world problems to teach students problem solving in the middle school classroom. The results show that this is true, but by no means conclusive. Every student is different and reacts to things in a different way. Some students respond better to the old boring problems and some respond to real-world problems. It seems that the students who participated in this research truly learned more when their interests were included in the lesson plan. When the teacher used a pop star reference, everyone paid attention, whether or not they liked the artist. The fact that the teacher took time to know about them helped develop a rapport between the teacher and the student. This could also have an impact on student learning. Building relationships with the students makes the students know that you care, and, therefore, they will care.

Overall, including students' interests in the lesson helps build student interest in the subject being taught. This can work in any subject at any grade level. The way to build background knowledge for students is to relate the material to the students' lives. What better way to do this than to find out what the students like and use it in the classroom to develop student interest in the classroom. When I mentioned Chris Brown, the girls got immediately involved in the conversation, while the boys wanted to use other singers that they like. It helped build camaraderie in the classroom, between the teacher and the students, and that facilitated learning. It built student interest and involvement, and made the students want to learn more about mathematics.

The consensus from The National Council of Teachers of Mathematics seems to agree with the findings of this study. Real-world applications of mathematics are a vital component of the standards, according to the National Council of Teachers of Mathematics (NCTM, 2000). A

part of the standards is as follows: “middle-grades mathematics also needs to prepare students to deal with quantitative situations in their lives outside school.” One standard states: “recognize and apply geometric ideas and relationships in areas outside the mathematics classroom, such as art, science, and everyday life.” Real-world problems need to be recognized and included, otherwise NCTM would not have included it in their standards.

Professional development for teachers would include designing a program to help teachers relate material to their students’ lives by learning about their students and developing a plan to include those interests in the classroom. Teachers could have the students develop problems, on their own, for others to solve. Teachers could also use an interest inventory and develop problems using the students’ interests.

There is grant money available for such projects. According to the NCTM Web site, a grant was issued for West Middle School, in Tullahoma, TN, for REAL Algebra, which stands for Relating Education and Life. The students would use algebra to create a handicapped ramp for the front of their school. Students would develop a budget, the angles, the formulas, and the mathematics needed for this project. It would teach the students the real-life applications needed for such a project. This is something that students might design for another company later in life. Another grant was for a geometry camp. Students would spend a weekend at a campsite, developing problems and solving problems dealing with geometric shapes, areas, perimeters, measurements, and other facets of geometry and mathematics. These grants were funded by Toyota and NCTM (NCTM, 2006a, 2006b).

Using technology for using real-world problems in the mathematics classroom is an essential component of the process of integrating real-world problems into the mathematics classroom. Students can develop a Web page of their interests. Teachers can use the Internet to

look up students' interests if they do not understand what students are saying. Overhead projectors, computers, and many other kinds of technology are helpful for presenting the material to the students. Technology is a powerful tool that students want to know more about, and having students use this technology is a means of reaching the goal of integrating real-world problems into the mathematics classroom.

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Appendix A

Interest Inventory **8th Grade**

1. What do you do after school?

2. Name your favorite singer/band.

3. Who is your role model?

4. What are your interests and hobbies?

5. What is your favorite movie?

6. List your likes and dislikes about middle school.

7. What do you want to do when you graduate?

8. Who would you like to meet from the past?

Appendix B

Student Survey

1. Do you know what real-world problems are?
   Yes No

2. Would you like to solve problems that relate to your life?

Strongly Agree Agree Uncertain Disagree Strongly Disagree

3. Would using real-world problems build your interest?

Strongly Agree Agree Uncertain Disagree Strongly Disagree

4. Would you be more interested in math if it related to your life and interests?

Strongly Agree Agree Uncertain Disagree Strongly Disagree

5. Would you like to design math problems for others to solve?
   Yes No

6. Do you know what a Math Trail is?

   Yes No

Appendix C

Pre-test

Match the name of each property and its definition

___1. Distributive Property of Multiplication Over Addition

___2. Distributive Property of Multiplication over Subtraction

___3. Distributive Property of Division Over Addition

___4. Distributive Property of Division Over Subtraction

___5. Closure

___6. Additive Identity

___7. Commutative Property of Addition

___8. Commutative Property of Multiplication

___9. Associative Property of Addition

___10. Associative Property of Multiplication

___11. Reflexive Property

___12. Symmetric Property

___13. Transitive Property

a. If a, b, and c are any numbers and $c \neq 0$, then $(a+b)/c = a/c + b/c$.

b. A number such that when you add it to a second number, the sum is the second number.

c. If a, b, and c are any numbers, then $a^* (b-c) = a^*b - a^*c$.

d. If you are multiplying 3 numbers, the product is not affected by the way in which you group 2 of the 3 numbers.

e. For any real numbers a and b, if a=b, then b=a.

f. If a, b, and c are any numbers, then $a^* (b+c) = a^*b + a^*c$.

g. The order in which you multiply 2 or more numbers does not affect the product.

h. For any real numbers a, b, and c, if a=b and b=c, then a=c.

i. A set of numbers is closed under an operation if the result of the operation on 2 numbers in the set is a number in the set.

j. If you are adding 3 numbers, the sum is not affected by the way in which you group 2 of the 3 numbers.

k. For any real number a, a=a.

l. The order in which you add 2 or more numbers does not affect the sum.

m. If a, b, and c are any numbers and $c \neq 0$, then $(a-b)/c = a/c - b/c$.

14. What is the area of your room, if it is 25 feet long and 20 feet wide?

BE WE

Answer

15. What is the perimeter of your room if it measured 25 feet by 20 feet?

BE WE

Answer

16. What is the X-axis?

_____

17. What is the Y-axis?

_____

18. If Chris Brown receives $1.00 for every CD sold and he sold 5 million compact disks for $15.00 each plus he receives a one-time fee of $50,000 from the record company, how much money does Chris Brown make? (Show the formula and all work)

BE: WE:

Given:

Answer _____

19. If Jay-Z had a concert in Chattanooga, where he receives fifteen dollars for every ticket sold plus a one-time fee of seventy-five thousand dollars, how much money would he make if he sold fifteen thousand, five hundred tickets?

(Show the formula and all work)

BE: WE:

Given:

Answer

20. If a movie opens at the Rave and sells 300 tickets at $8.00 each and each customer buys $10.00 worth of drinks and snacks. How much does the theater make for that one movie?

21. How much does the theater make for 10 movies?

22. How much does the theater make for 50 movies?

23. There are 50 students in the math class and 8 out of 10 students pass the Algebra test. How many students passed the test?

Do Kindergartners Show Signs of Separation Anxiety?

Nadine Talbot

Education 590, Fall 2006

The University of Tennessee at Chattanooga

The Institutional Review Board of the University of Tennessee at Chattanooga (FWA004149) has approved this research project #06-152.

Introduction to the Problem

In this paper, I will discuss separation anxiety and ask the question: Do kindergartners exhibit this phenomenon? I am interested in separation anxiety because, as a future kindergarten teacher, I feel it is my responsibility to have a broad understanding of the feelings and problems with which kindergartners are faced. Teachers can identify, at an early stage, students at risk for developing certain disorders, and become knowledgeable about behaviors which are likely to interfere with success at school. Also, teachers are able to share information with students' parents, which may result in early identification of signs and symptoms of emotional disorders, conditions, or mental illness. Teachers can provide critical information to parents for treatment, establish reasonable expectations, and can advocate for students with emotional disorders, conditions, or mental illness.

Review of Literature

Separation Anxiety Definition

"Worry, angst, nerves and the jitters are words commonly used to describe anxiety, a normal human state of being – for children and adolescents as well" (Alberta Learning, 2000, p. 48). "It is only when people feel overwhelmed or crippled by the intensity and duration of their anxiety that they may be said to have problem anxiety or an anxiety disorder" (Alberta Learning, 2000, p. 48). According to the American Psychiatric Association (1994), Separation Anxiety Disorder (SAD) is characterized by "developmentally inappropriate and excessive anxiety concerning separation from home or from those to whom the individual is attached" (p. 126). According to Alberta Learning (2000), separation anxiety is a common anxiety disorder. "Children exhibiting

homesickness, school phobia and loner behavior may be manifesting separation anxiety" (p. 48). Alberta Learning (2000) states that the disturbance causes significant distress or impairment in school, social, or other important areas of functioning. Children who experience SAD are significantly distressed by separation from an attachment figure, usually a parent, and seek to avoid separation at all costs (Choate, Pincus, Eyberg, & Barlow, 2005). The anxiety is beyond what is expected for children in this age (Choate et al., 2005). Research from Choate et al. (2005) suggests, "3.5% to 4.1% of children may develop SAD" (p. 126).

Physiological and Psychological Effects

Anxiety disorders can range from mild to severe in intensity and can produce physiological and psychological effects. Physiological effects can range from rapid to shallow breathing, pounding or skipped beats of the heart, blushing, fainting or dizziness, trembling, feelings of weakness in the limbs, aches, stiffness, increased sweating, stomach ache, nausea, vomiting, and diarrhea. Psychologically, it consists of apprehensive self-absorption interfering with effective problem solving, high levels of negative feeling, excessive worry about possible danger or threat, and a sense of being unable to control the threat, if it occurs. When separated from their families, these children frequently exhibit social withdrawal, apathy, sadness, and difficulty concentrating. Refusal to attend school leads to academic difficulties and social problems. When separated from major caregivers, the child wants to know where they are and may wish to stay in touch with them by telephone. When homesick, these children yearn for home and fantasize about the pending reunion with their parents. They are often anxious that their parents will experience accidents or illness during their time apart.

When extremely upset about an impending separation, the child may show anger and physically hit the person trying to enforce the separation (Alberta Learning, 2000). According to Choate et al. (2005), young children with SAD may display disruptive, oppositional behaviors in addition to the avoidance behaviors that can cause significant interference in child and family functioning and in normal social development. Choate et al. (2005), also claim, "other parents state their children are in fact very compliant except for when situations involving separation arise" (p.127).

According to Bernstein (2005), no specific differences in prevalence rates are noted for specific racial or cultural groups; however, somewhat increased incidence has been reported among families of lower socioeconomic status, as well as single parent families. Bernstein (2005) also concluded prevalence is approximately equal between males and females. However, according to Huberty (n.d.), some research has found that girls tend to show higher levels of trait anxiety than do boys, but these differences may be more related to social expectations. Girls may be given more social permission to report anxious symptoms. At ages 10 to 11, boys are more likely to show fewer fears than do girls, resulting in girls showing more anxiety at early and late adolescence. Girls and boys tend to be anxious about different things. Girls may be more concerned about receiving approval from adults, whereas boys appear more concerned about how they are perceived by their peers. Therefore, when social expectations are controlled for, there appear to be few, if any, gender differences in anxiety. Among those who seek treatment, separation anxiety disorder is equally distributed between boys and girls. In survey samples, the disorder is more common in girls (Huberty, n.d.). Bernstein (2005) concluded that the mean onset of separation anxiety disorder is at age 7.5 years. Mean onset of school

refusal is at age 10.3 years. Separation anxiety disorder is most frequent among younger children. One study lists prevalence rates for children aged 7-11 years at 4.1% (Bernstein, 2005).

Problem Identification

There are many ways for psychologists to gather information about the anxiety a child is exhibiting. Some of these ways include interviews, behavior rating scales, and behavioral observations.

Interviews. Either structured or semi-structured interviews may be used to identify specific targets for intervention. In general, however, a functional, behavioral interview is likely to give valuable information about (a) target behaviors; (b) possible alternative appropriate behaviors; (c) controlling antecedent and consequent variables; (d) the mediational value of parents, teachers, and others; and (e) identification of positive and negative stimuli (Huberty, 1996).

Behavior rating scales. These scales are frequently used in child assessment, and may be useful in gaining the perception of others about the nature of a child's symptoms. Because they tend not to correlate well with a child's self-reports of internalizing symptoms, however, they do not provide the same type of information as that gained directly from the child. Many of these scales have anxiety subscales or related factors that may identify specific behaviors for consideration as target behaviors (Achenbach, McConaughy, & Howell, 1987).

Behavioral observations. Although observations may be useful in the problem identification phase, they are limited to identify behaviors. Little is gained about the child's thoughts and cognitions, which must be derived by other methods. If the

behaviors are infrequent, systematic observation may not produce a large amount of data. Nevertheless, observations should be conducted and considered in this phase, so that precise information is available about the settings where anxiety occurs and the child's reactions. Observations also may be useful as measures of treatment effectiveness (Huberty, n.d.).

Classroom Strategies

Teachers must be aware of what problematic anxiety looks like at school. Behavioral cues to excessive anxiety include refusing tasks; exam-performance anxiety; reactions to certain school-based sights, sounds, and smells; complaints of freezing; frequent trips to the washroom; attendance problems; repetitive perfection-seeking behaviors; and clinging to parents or teacher (Alberta Learning, 2000).

Teachers can also help by talking with anxious students about the fact that there are things that can be done to deal with their anxiety; the goals of schooling which are important and cannot be avoided; the importance of making a commitment to work with the teacher and others to resolve anxious symptoms; and the steps they have taken, or would be prepared to take, to deal with their anxiety (Alberta Learning, 2000).

Adapting to the setting may be helpful in the management of anxiety. A routine, predictable environment does much to support anxious students. Allowing an exam-anxious student to work in a different space may provide enough of a distraction to reduce the stress level. Physical movement, such as going for a walk in the hallway, running an errand, moving their desks, and going to the washroom can be used to reduce anxious tensions. Art work at a clay/sand table, listening to a story, or a music relaxation

exercise through headphones can also help a student get over an anxiety hump (Alberta Learning, 2000).

Goal setting is important with anxious students. Communication and positive self-talk between the student and the teacher needs to be clear and consistent. Creating distractions is a useful skill for teachers of anxious students. Using the peer group is another school-based resource that can help. Buddying anxious students with a more confident peer, and using circle time to have students brainstorm solutions to hypothetical anxiety-provoking situations, are examples of how to use this group as a support for students who are anxious (Alberta Learning, 2000).

What Can Teachers Do?

Teachers can help reduce the negative effects of problem anxiety by teaching and practicing soothing coping strategies and helping students "avoid avoiding" (Alberta Learning, 2000, p. 65). Teachers can keep anecdotal records, and maintain notes of student interactions in the classroom or playground. Teachers can track changes in student behavior, mood, or attitude, and verbal, emotional, or physical outbursts. Analyzing anecdotal notes can determine whether the student's actions or disruptions are common or out of the ordinary for their age group, are isolated or increasing in number, are random or follow some pattern, or are triggered by situations (Alberta Learning, 2000). When making anecdotal notes, teachers should objectively describe the behavior, situation, or action, and refrain from making judgments. Record the date, time, and location where the observation is made or the incident occurs. Teachers should include the names of any other individuals involved, and make the anecdotal note, as soon as possible, after the event occurs or the observation is made (Alberta Learning, 2000).

Conclusion

In conclusion, I want teachers to become aware of Separation Anxiety Disorder in hopes that they will recognize symptoms and help children cope within the classroom setting. In my research, I expect to find that kindergartners do suffer from some mild physiological and physiological symptoms of separation anxiety. I think students will exhibit signs of separation anxiety but students will naturally become more comfortable with separation. Do children worry about leaving their caregivers and/or home? Do children suffer physiological and psychological problems when separated from their home and/or primary child care giver? Do kindergartners suffer from separation anxiety?

Data Collection and Results

Experiment 1

Method

Subjects. Subjects in this study consisted of 10 kindergarten students in a classroom. Ages are 5-6 years old. There are five female students and five male students participating in this study. There are three African–American students and seven Caucasian students participating (see Figure 1). The students attend a public school within the Hamilton County school system in Chattanooga, Tennessee during the 2006-2007 school year. This was the first year of school for these students. The school days and hours are Monday – Friday from 8:30 a.m. until 3:30 p.m. The length of this study will be 3 weeks.

Instrument. The *Student Separation Scale* will be used on a daily basis during the 3 weeks of the study.

Procedures. The *Student Separation Scale* - Drop-off Behaviors – (see Appendix A) will be used daily to keep records of the students on a daily basis.

Experiment 2

Method

Subjects. Subjects in this experiment consist of the same subjects as in Experiment 1.

Instrument. Anecdotal notes will be used on a daily basis during the 3 weeks of this study.

Procedures. Anecdotal notes will be kept on each student on a daily basis. When an observation or incident occurs, as soon as possible, I will record the date, time, location, and the code number of individuals involved. This will be recorded in a logbook.

Experiment 3

Method

Subjects. Subjects in this experiment consist of the same subjects as in Experiment 1.

Instrument. The "The Hamilton Anxiety Rating Scale" will be used once per week, on Fridays, to log physical symptoms in 10 students.

Procedures. Once every week, on Fridays, I will conduct observation time to conduct the "The Hamilton Anxiety Rating Scale." The scale is modified from The Anxiety Community (2005) and Lundbeck Institute (n.d.). I will use this scale to keep records of physical symptoms I observe in students.

Data Collection

Student A	Caucasian	Female	Age 6
Student B	Caucasian	Male	Age 6
Student C	Caucasian	Male	Age 6
Student D	Caucasian	Male	Age 6
Student E	African-American	Female	Age 6
Student F	African-American	Male	Age 5
Student G	African-American	Female	Age 6
Student H	Caucasian	Female	Age 6
Student I	Caucasian	Female	Age 6
Student J	Caucasian	Male	Age 6

Figure 1. Demographics of participants.

Results

Experiment 1 Results

The *Student Separation Scale* - Drop-off Behaviors was used to keep records of the students on a daily basis. This scale is used during the morning, when caregivers drop off the students at school. Behaviors I looked for were worry, angst, fear, social withdrawal, apathy, sadness, and/or difficulty concentrating.

Behavior rating scales are useful in gaining the perception of others about the nature of a child's symptoms. (Achenbach et al., 1987). A result of 5 is extreme behavior (i.e., exhibiting extreme signs and symptoms of uncontrollable behavior – kicking, screaming, noncompliant – the child will have to be removed from the classroom setting). A result of 3 is moderate behavior (i.e., exhibiting many signs and symptoms, but the behavior is controllable within the classroom setting). A result of 1 is mild behavior (i.e., exhibiting signs and symptoms of mild behavior and mild duration). A result of 0 means no symptoms are present.

During the 3 weeks of this study, I concluded that three students showed signs of mild separation anxiety, with regard to their behavior. One child show behavioral signs on a scale of 3, which is moderate separation anxiety. I analyzed behavior, and noticed when the student would verbalize their concerns about home or missing family members. Results are summarized in Figure 2.

Experiment 2 Results

Anecdotal notes were used, on a daily basis, during the 3 weeks of the study. When an observation or incident occurred, I recorded the date, time, location, and the code number of individuals involved.

Anecdotal notes were taken on Student B. Summaries of these notes include the following. November 15, 2006 - 9:10 a.m. Student B claims, "He wants to go home." During circle/morning time, I noticed the student's attention was not being focused on the teacher in the classroom. I approached the student and asked him to give the teacher his full attention. The student then said, "I want to go home." November 17, 2006 – 9:24a.m. After morning circle time had been dismissed, the students went back to do seatwork at their table. I observed student B having difficulty concentrating on his work. He had is head down for 4 minutes, then played with his crayons for another 2 minutes. He fidgets in his seat and shows physical restlessness. The teacher had to consistently try and keep Student B on task by asking him to "please focus." During four other incidences, I also noticed Student B's behavior similar to that just described. He fidgets in his seat, lays his head down, shows signs of restlessness, and has difficulty concentrating. The times of these incidences are also similar. It is during morning time (9:00 a.m. – 9:30 a.m.) when individual work is expected. On November 27, 2006, Student B also asked me, "Is it a

weeknight?" and told me, "I hate school." This was during the afternoon, at 2:37 p.m. He was at his table doing individual work, when I approached him randomly and asked if he needed help.

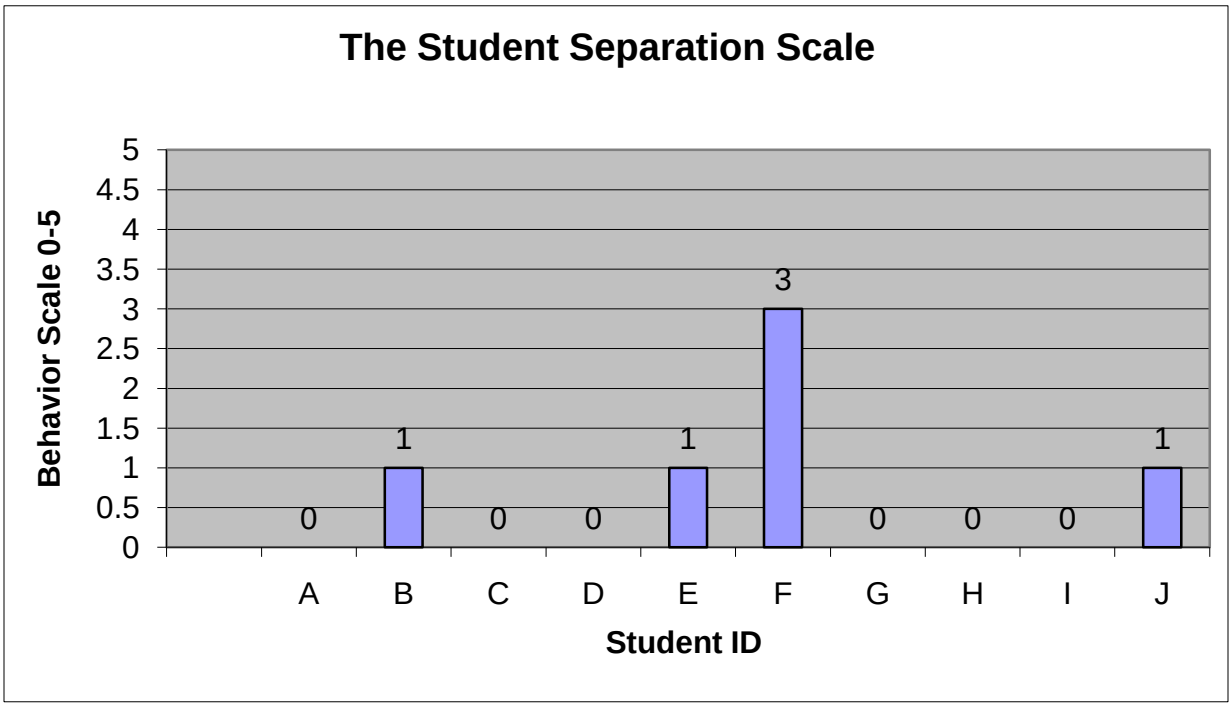

Figure 2. The Student separation scale – Experiment 1.

Student A	Scale 0	No incidences observed.
Student B	Scale 1	Difficulty concentrating, staring off, "wants to go home."
Student C	Scale 0	No incidences observed.
Student D	Scale 0	No incidences observed.
Student E	Scale 1	Signs of sadness, worry, talks about mommy during class time.
Student F	Scale 3	Signs of sadness, dislikes routine changes, and cries easily in the morning.
Student G	Scale 0	No incidences observed.
Student H	Scale 0	No incidences observed.
Student I	Scale 0	No incidences observed.
Student J	Scale 1	Difficulty settling into morning routines, sadness, and social withdrawal in the morning time.

When summarizing Student B's notes, I found that most of his occurrences happened in the morning. He showed difficulty concentrating and made references to

outside situations, such as home, or hating school. My feelings, as an educator, would be to have student B more involved during morning activities to keep his focus on his work and less on other things he is feeling. Pairing him with someone who can help him get his work done more quickly would be a great idea for this student, in the classroom.

Anecdotal notes were taken on Student E. Summaries of these notes include the following. November 20, 2006 – 9:07 a.m. Student E was sitting quietly during circle/morning time when I looked at her and noticed she had tears running down her face. When I asked what was wrong, she claimed, "I miss my mommy." During this time, she was silent and focused on me (I was teaching the lesson). After I comforted her for a few seconds, her tears ended. Other incidences of random crying were also noted. November 23, 2006 - 9:09 a.m. and November 28, 2006 - 9:15 a.m. At both of these incidences, I noticed tears coming out of Student E's eyes. She remained clam and quiet, but was crying. Both times, I asked her what was wrong, and she just shook her head side to side. This suggested to me, "something, but I don't want to talk about it," which also suggests that she is worrying internally about something.

While summarizing Student E's notes, I concluded that Student E's incidences occurred during circle/morning time. On only one account did she verbalize words to match her crying/feelings. She showed signs of sadness during the morning time, and her one claim of "missing mommy" verbalizes to me that she is showing mild signs of separation anxiety.

Anecdotal notes were taken on Student F. Summaries of these notes include the following. November 13, 14, 17, 20, 22, 27, and 28, 2006 – approximately 2:15 p.m. Student F falls asleep during circle/whole group time in the afternoon. November 17,

2006 - 9:45 a.m. I asked student F if he would mind moving to another table because of another project, which was going on at his table. Student F finally stood, after 2 minutes of me coaxing him, and began to cry. I asked him why he was crying, and he vocalized to me that "he didn't want to move." After about 4 minutes of calming down student F, I made other arrangements and allowed the student to sit back down at his chair where he was comfortable. On November 23, 2006 - 10:15 a.m., Student F also claimed "his neck hurts when moving side to side."

While summarizing Student F's notes, I concluded that Student F's incidences occurred during the afternoon, around 2:00 p.m. This suggests to me that a nap is sought. His incidence of refusing to change tells me that he is not comfortable with other people in a social setting. I felt, with this incidence, that he was scared to move to another part of the classroom, possibly because he has never sat anywhere else. His age, although, is a factor. He is much younger, 8 months, than his peers.

Anecdotal notes were taken on Student J. I have noticed, on more than one occasion, that he has difficulty settling into morning routines. On November 13-17, 2006, Student J takes longer than the other students to prepare for class. He has difficulty getting out morning work to be checked, putting his book bag and coat away, and settling into his morning work on his desk. He is slow moving while doing this work and also shows signs of social withdrawal. He does his morning routine without talking to any peers and/or the teacher. On November 30, 2006, at 8:40 a.m., he checked in with me in the morning to show me his work from the night before, and the first words he said were "I miss my mommy."

While summarizing Student J's notes, I have concluded that he has difficulty settling into morning routines, because he has difficulty transitioning from home time to school time. His comment on "missing mommy" makes me think that his mind is not focused on school and peers, but rather still on home. Transitioning strategies from home to school can help Student J have an easier time dealing with school tasks within the morning.

Experiment 3 Results

The "The Hamilton Anxiety Rating Scale," taken from The Anxiety Community (2005) and Lundbeck Institute (n.d.), was used once per week to log physical symptoms in the 10 students. Observations were used to conduct this scale. The Hamilton Anxiety Scale (HAMA) is a rating scale developed to quantify the severity of anxiety symptomatology. It consists of 13 items, each defined by a series of symptoms. Each item is rated on a 5-point scale, ranging from 0 (not present) to 4 (severe).

Week 1: Students A, C, D, G, H, I, and J show no symptoms, "0" in all categories. Student B shows a "1" in Intellectual and Depressed Mood. Student E shows a "1" in Anxious Mood and Depressed Mood. Student F shows a "3" in Tension and a "1" in Depressed Mood.

Week 2: Students A, C, D, G, H, I, and J show no symptoms, "0" in all categories. Student B shows a "1" in Intellectual and Depressed Mood. Student E shows a "1" in Anxious Mood and Depressed Mood. Student F shows a "2" in Tension and a "2" in Depressed Mood and a "1" in Somatic Complaints: Muscular.

Week 3: Students A, C, D, G, H, and I shows no symptoms, "0" in all categories. Student B shows a "1" in Intellectual and Depressed Mood. Student E shows a"1" in

Anxious Mood and a "1" in Depressed Mood. Student F shows a "2" in Tension and a "1" in Depressed Mood. Student J shows a "1" in Depressed Mood.

Each item in this scale has a series of symptoms. For this study, Anxious Mood is defined as a “decreased interest in activities.” Intellectual Mood is defined as “Poor concentration.” Depressed Mood is defined as “Decreased interest in activities.” Student F shows Tension, which is defined, in this case, as “restlessness” and “cries easily.” Results are summarized in Figures 3, 4, and 5.

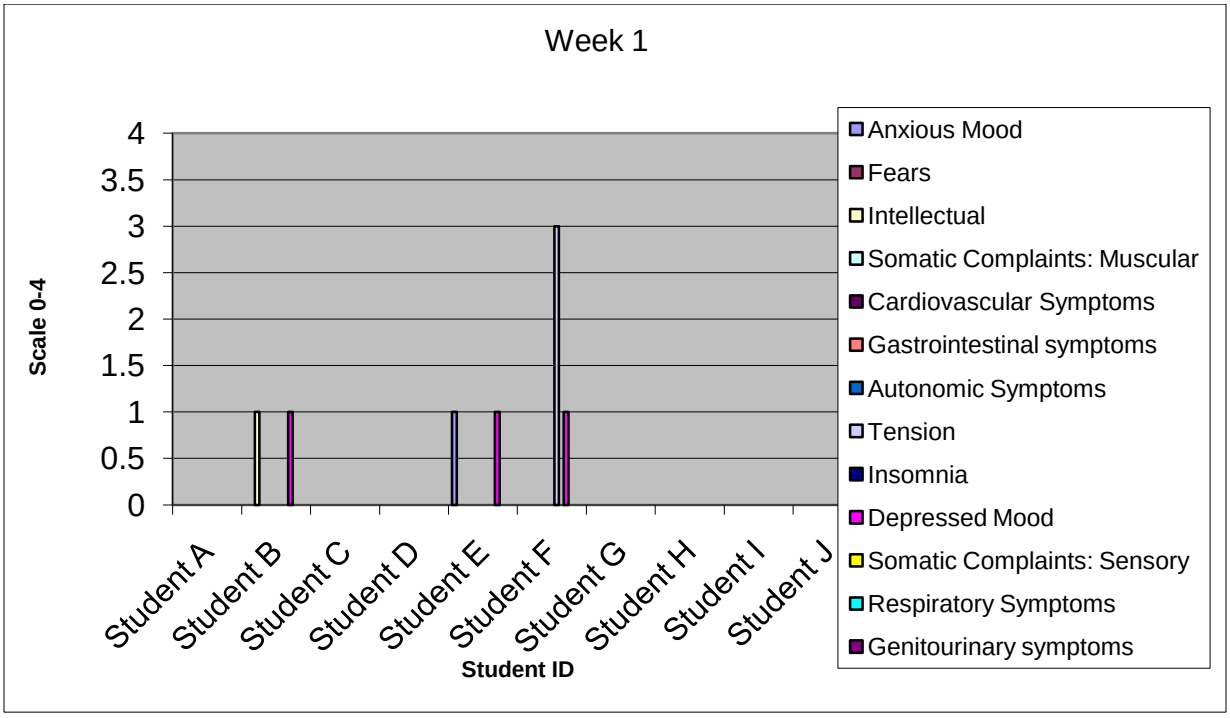

Figure 3. Week 1 – Hamilton Anxiety Rating Scale.

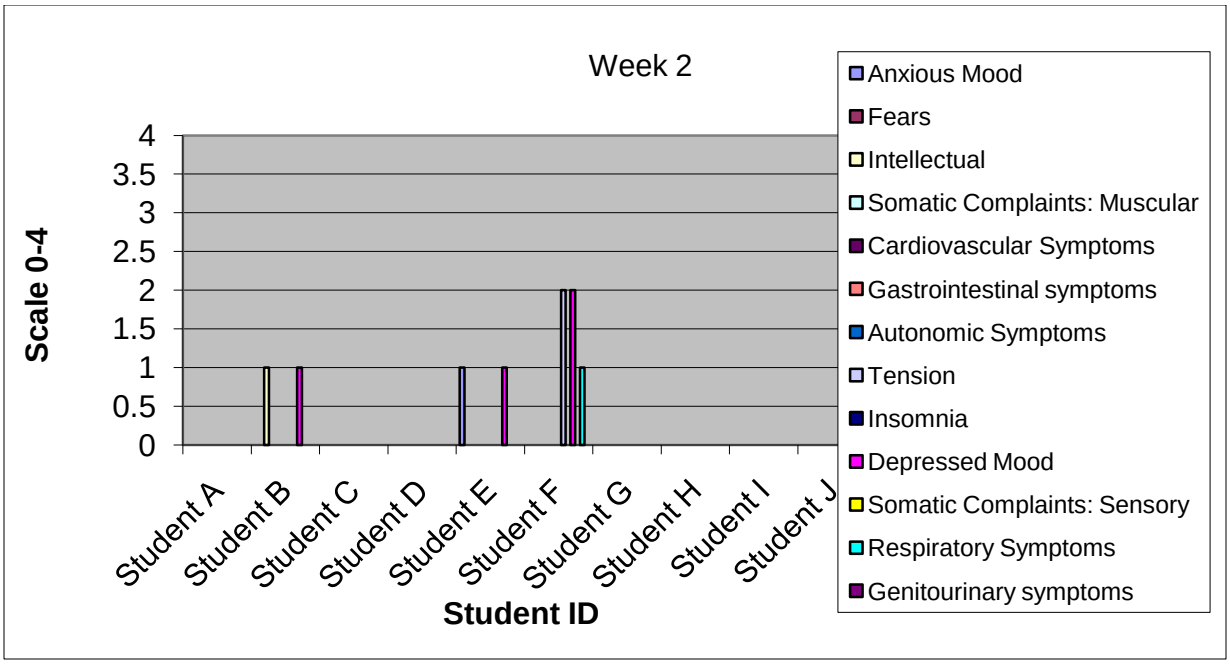

Figure 4. Week 2 – Hamilton Anxiety Rating Scale.

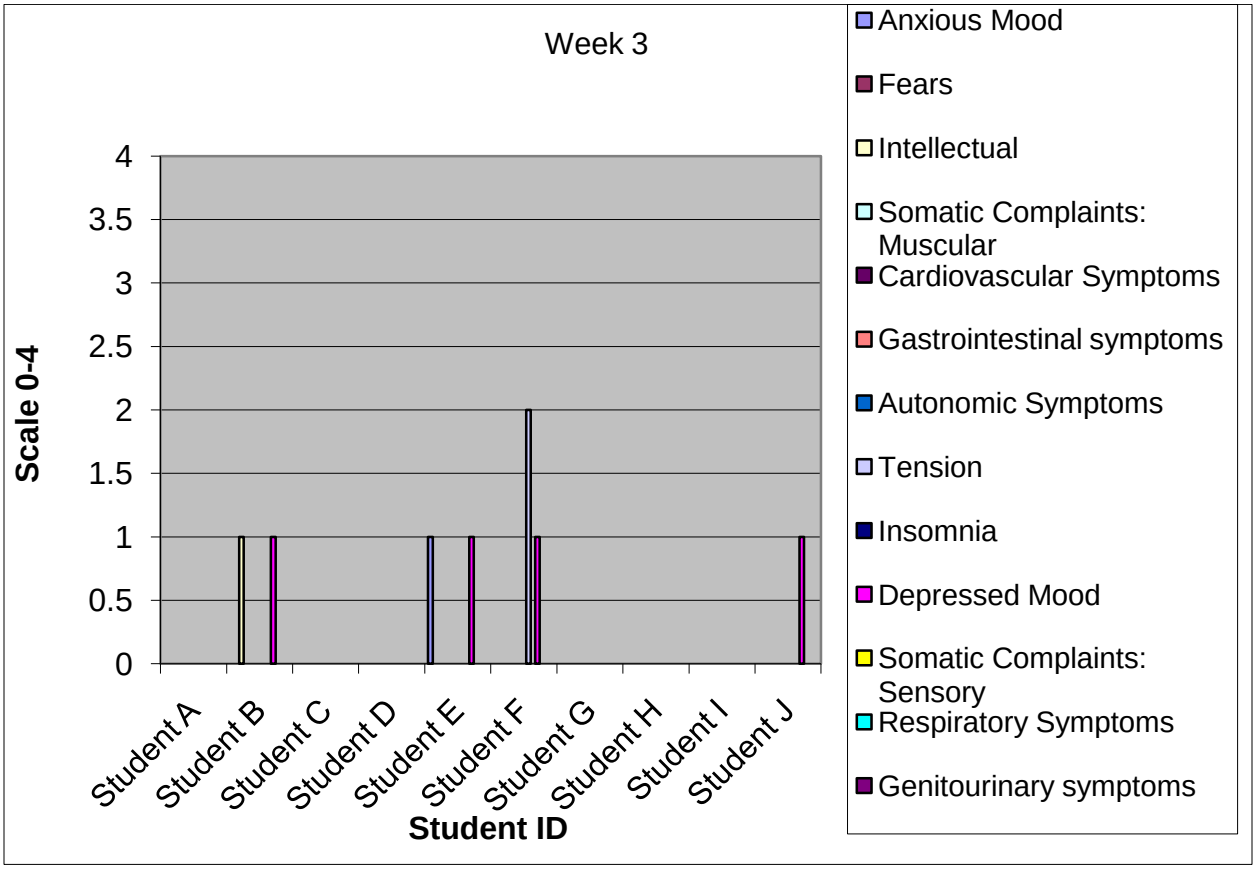

Figure 5. Week 3 – Hamilton Anxiety Rating Scale.

Conclusions and Recommendations

I can generalize from this information that some children do suffer from separation anxiety. Based upon these results 4 of the 10 children suffer from mild separation anxiety. At some time, 1 of 10 people suffer from moderate separation anxiety. I can conclude that separation anxiety can result in discipline problems for students. Separation anxiety in students within the classroom can result in anger, sadness, insecurities, restlessness, and sleeplessness, which can all hinder excellence within the learning environment.

It is important for teachers to become aware of Separation Anxiety Disorder in hopes that they will recognize symptoms and help children cope within the classroom setting. Higher levels of student learning can be accomplished, classroom management can improve, and individual student wellness can be achieved, when problems are treated and not ignored.

People who work in early childcare centers and/or prekindergarten and kindergarten should read material and information about Separation Anxiety Disorder. I would recommend to teachers to become educated about all disorders, knowing and understanding your students, and talking about problems which students may have, and talking to colleagues for suggestions. Parents can also help transition children from home to school by talking to children, and "phasing" students into school. Libraries, community agencies, medical professionals, and articles and information on the Internet can all be used as a starting point to learn more about the disorder.

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Appendix A: Student Separation Scale

This is a drop-off behaviors sheet which will be used to keep records of the children on a daily basis.

Behavior to look for: Worry, angst, fear, social withdrawal, apathy, sadness, difficulty concentrating

Code Number of Child	Date	Observation

The Effects of Structured Learning Logs on Metacognition and Student-Teacher Communication in a Fourth Grade Class at a Suburban Elementary School in Hamilton County, Tennessee

Beverly Trent

Education 590, Fall 2006

The University of Tennessee at Chattanooga

The Institutional Review Board of the University of Tennessee at Chattanooga (FWA004149) has approved this research project #06-130.

Introduction to the Problem

This research proposal was designed to find solutions to several problems teachers and students often encounter in elementary school classrooms. First, elementary school students sometimes view academic skills as abilities one either has or does not have (Perry, Dowler, & Phillips, 2004). Because they do not view learning as incremental, these students can begin to form limitations for themselves, in their own minds. Secondly, elementary school students often have not had opportunities to practice the skill of reflecting on their learning. They may have some sense of where their strengths and weaknesses lie, but they have not had the chance to put these thoughts into words and to develop goals to make progress in these areas (Harada, 2002). Thirdly, students in elementary school sometimes do not have consistent and varied methods of communicating with their teachers about the learning process (Tjeerdsma, 1997). Teachers could benefit from alternative methods of checking for understanding. This might help ensure that communication between the teacher and the students is effective.

The first comprehensive study of journal writing in the classroom was conducted in 1979 (Harada, 2002). The results of this study indicated that interactive journal writing helps students and teachers learn from one another. Teachers are able to guide student thinking, students challenge teachers, and teachers can tailor instruction to better meet student needs. Subsequent studies in this area have also documented the effectiveness of journal writing (Harada, 2002).

Sometimes, however, journal writing can be cumbersome for teachers and students. If students are not given direction, journal entries can be more like creative writing pieces (Carr, 2002). When teachers are searching for specific feedback, structured

learning logs may serve their purposes more effectively and efficiently (McIntosh & Draper, 2001).

The aim of this action research study is further investigation into the area of structured learning log use in the elementary school classroom. Many action research studies have focused on the use of structured learning logs in higher education, but few have focused on the use of these logs, specifically, as they relate to elementary education. This research study endeavors to delve deeper by investigating exactly how structured learning logs affect metacognition, especially as it relates to self-efficacy and goal setting. It will also attempt to bring more light to the area of structured learning logs' affect on teacher-student communication, especially as it relates to a teacher's ability to guide students in the development of certain learning strategies.

Review of Literature

The 10 research studies I reviewed for this proposal vary greatly in their premises and conclusions. Most of them deal with journal writing as it relates to elementary school students, with two of them relating to older students. However, all of these action research studies inform mine in some way. Some clarify conclusions of current research; others disclose areas in need of further exploration.

In his action research project, *Learning Logs: Writing to Learn, Reading to Assess*, Daniel Heuser (Heuser, 2005) used structured learning logs with his first and second grade class during inquiry-based science projects. Heuser found that the students provided more detailed responses when learning log writing sessions were preceded by a class discussion, in which he guided the conversation with discussion prompts. For each writing session, Heuser put two writing prompts on the board to structure learning log

entries. The first prompt was the inquiry question and the second prompt was a general question to which students could respond according to their abilities and understanding. Heuser found that having students write for 10 minutes straight lead to more detailed writing than allowing them to finish early. He also concluded that circulating among the students, while they were writing, allowed him to guide their writing while they were in the process, leading to more in-depth responses.

Joan Gilbert and Marleen Kotelman also performed action research on journal writing as it relates to science (Gilbert & Kotelman, 2005). This school-wide research was conducted at Miller Elementary School in Tucson, Arizona, where the journals, or notebooks, as they were called in this study, were used in conjunction with a kit-based science program. Through their research, Gilbert and Kotelman found that writing in journals helped the students interact with the subject matter in more depth. Students began to add their own questions to their journal entries. Thus, the researchers concluded that journals help students use writing for thinking and make them more active in the learning process. Gilbert and Kotelman also found that the journals were valuable sources of information for teachers, giving them a window into what students were thinking, and helping them plan future instruction. The researchers also concluded that writing in journals enhanced students' literacy skills and provided structure and support. Teachers in this action research project did not provide guided questions at the beginning of each journal-writing session. Instead, they responded to students' entries with individualized, guided questions written on sticky-notes.

Cathy Livingston's research added additional light to the subject in that she used guided questions for her fifth-grade action research project (Livingston, 2005).

Livingston found that specific content questions helped focus the students' responses. She observed students during the writing process and filled out checklists regarding student interest. Livingston also had students evaluate their own journal entries through the use of a rubric. She found that students were able to evaluate their journal entries, making observations and suggestions similar to her own.

In their published research, Margaret E. McIntosh and Roni Jo Draper defined a log as a running commentary (McIntosh & Draper, 2001). These researchers found that using structured learning logs in conjunction with the mathematics curriculum gives learners an opportunity to communicate their ideas and to clarify their thinking. McIntosh and Draper concluded that giving students specific prompts leads them to respond to the teacher's concerns. They emphasized questions that ask students to connect new information to previous knowledge. The results of the action research study also stressed the importance of responding to student journals so that students know their journals are being read. McIntosh and Draper found that students were willing to write more when teachers responded to what they had written.

In her action research project, Violet H. Harada (2002) focused on how journal writing impacts the metacognitive process, the development of student strategies, and the instructor's engagement with students. She conducted her research with upper elementary school students at a school in Honolulu, Hawaii, using student journals to follow and guide student thinking through the research process. Harada had the educator leading the students in the research experience record her feelings in a journal, as well. Following her research, Harada concluded that "most of [the students] became more aware of their thinking processes through journal writing … they also grew in their ability to identify

techniques for self-improvement (Harada, 2002, p. 13). Harada wrote that the experience helped the educator see things from her students' point of view. She also wrote that the research project was a process for the educator in building interpersonal relationships with the students.

Marcia S. Freeman conducted an action research project about the impact of journal writing on students' understanding of informational text at the elementary school level (Freeman, 2003). She concluded that writing is an essential tool if teachers are to understand what their students have learned. She also concluded that writing about what one has read can deepen a student's understanding of informational text.

Bernice Y. L. Wong and her co-researchers also investigated journal writing as it relates to a student's understanding of text. However, they focused more on guided journals, with specific questions posed to students (Wong, Kuperis, Jamieson, Keller, & Cull-Hewitt, 2002). This research study also investigated the stages of metacognition, as related to the development of self-efficacy. The researchers based their conclusions on surveys given to the high school students participating in the study, including students in the control group. Those in the control group participated in classroom discussions instead of writing in journals. The researchers found that students who wrote in guided-response journals "felt that the act of writing made them think more deeply about the short stories, triggered more ideas, clarified their thinking, and helped them retain what they understood" (Wong et al., 2002, p. 187). These findings, as they relate to metacognition and self-efficacy, have implications for my study on the elementary level, as well.

In their study on the features that promote self-regulated learning, Nancy Perry, Lynda Phillips, and Judy Dowler investigated the mentor teacher's role in helping student teachers support the development of self-regulated learning in elementary school students. Their findings helped clarify my research on the use of structured learning logs because my study also deals with the characteristics of self-regulated learners, in that these learners are metacognitive, intrinsically-motivated, and strategic (Perry, Phillips, & Dowler, 2004). One of the authors' conclusions was that beginning teachers can develop tasks that promote self-regulated learning in their students. This conclusion forms the basis for my action research project.

In their action research study, Christine Kolar and Shirley V. Dickson examined the effects of using structured learning logs in a teacher education program. Their study was designed much like mine, even though it dealt with higher education. Kolar and Dickson believed the use of structured logs would guide students to a deeper level of reflectivity and scaffold them in their learning (Kolar & Dickson, 2002). Through their analysis of student log entries, student interviews, and surveys, they concluded that structured learning logs are multi-purpose tools that enable students to reflect on, connect with, and maintain information (Kolar & Dickson, 2002).

Jane Britsch and Kathryn A. Heise took a different approach to analyzing the journaling process in their action research project. Britsch and Heise focused on using children's science journals to improve instruction in a classroom that included students with special needs. The authors found that using student journals was not always the most effective method for students to communicate their understanding about topics studied in class. Students with special needs often found their own ways to express what they were

learning (Britsch & Heise, 2006). The authors concluded that teachers should not try to push particular methods of expression, especially when dealing with children who have special learning needs. Journals can be effective for children with special needs, but the authors stated that teachers need to be open to alternate ways in which these children will express what they have learned.

An inquiry into current research in the area of using structured learning logs in the elementary school classroom reveals that there is still more to be discovered, as it relates to the impact of these logs on metacognition and teacher-student communication. Although some of these studies touch on these areas, none of them specifically focuses on fourth graders. These studies focus primarily on the use of structured learning logs in one subject area. None of them used the structured learning logs to check for student understanding across several subject areas. I hope my research will continue where these studies have left off, extracting more information relating to the use of these multifaceted tools.

Data Collection and Results

Data Collection

Subjects

The subjects for this study were students in a fourth-grade class at a suburban elementary school in Hamilton County, Tennessee. Nineteen students participated in the study. The students and their parents were given consent forms requesting their participation in the study. They were informed that this research project would not affect their child's grades in any way, and that participation was voluntary.

Methodology

Students were given binders filled with paper that served as their learning logs. I talked with students about how these learning logs would be a type of conversation between us.

Time commitments. I set class time aside 2 times per week for students to write in their structured learning logs, or journals. The study took place over the course of 4 weeks. Students would write for approximately 10 to 20 minutes during each session. In all, students wrote in their structured learning logs eight times.

Instruments. The structured learning log, itself, was the main instrument used to record data in this research study. Students were also given a survey at the conclusion of the study. This survey was used to find their opinions and reactions to using structured learning logs. To view the survey, please refer to Appendix A.

Procedures. Preplanned questions were written on the board or typed on sheets of paper. Students were instructed to respond to these questions. I also told the students that they could add any other thoughts at the end of their journal entries. Journal entries dealt with several different subject areas. While the students wrote, I moved around the room, looking at in-progress entries and guiding students in their responses (as did Heuser, 2005). I reviewed the journals after each writing session, taking time to model thought processes and to respond. I passed back the journals to the students a few days later so students could read what I had written and respond to individualized questions. To view the first structured learning log question set, please refer to Appendix B.

Results

In analyzing the results of my data, I identified the student learning log responses that dealt with the two main themes of my study: those having to do with metacognition,

and those dealing with student-teacher communication. I broke metacognition into two categories that represent the problems I sought to investigate through my research: students viewing learning as incremental and students reflecting on their own learning.

I documented the frequency with which students' learning log entries showed them reflecting on their own learning, talking about the learning process in a way that demonstrated that they viewed learning as incremental, and communicating with the teacher about the learning process. For these purposes, communicating includes asking the teacher content-specific questions, talking about communication, and commenting on the way curriculum is presented in the classroom. Figure 1 shows the number of times students wrote about these aspects of learning in their learning logs.

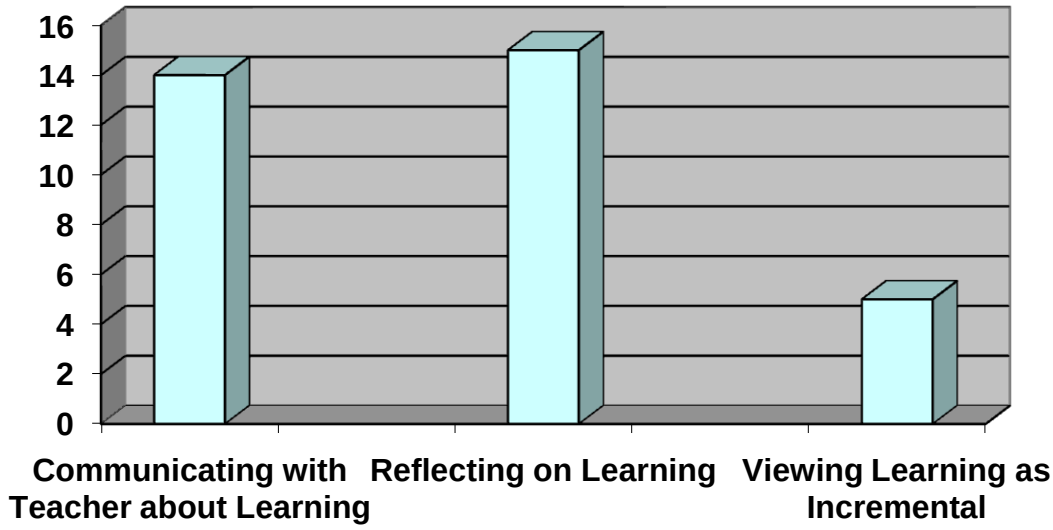

Figure 1. Frequency of student entries about key aspects of metacognition and communication.

These results show that the fourth-grade students participating in this study most frequently chose to use the structured learning logs to reflect on their learning and to communicate with the teacher. Their writing reflected a view of learning as being incremental far less frequently. I compared these findings with the results of a survey in which I asked students what they most valued about the structured learning log activity. In response to question four of the survey (see Appendix A for complete survey), students responded in one of three ways. They wrote that they valued communicating with their teacher, reflecting on their learning, or responded with a non-specific, broad statement, such as, "everything." The results from this survey question are represented in Figure 2.

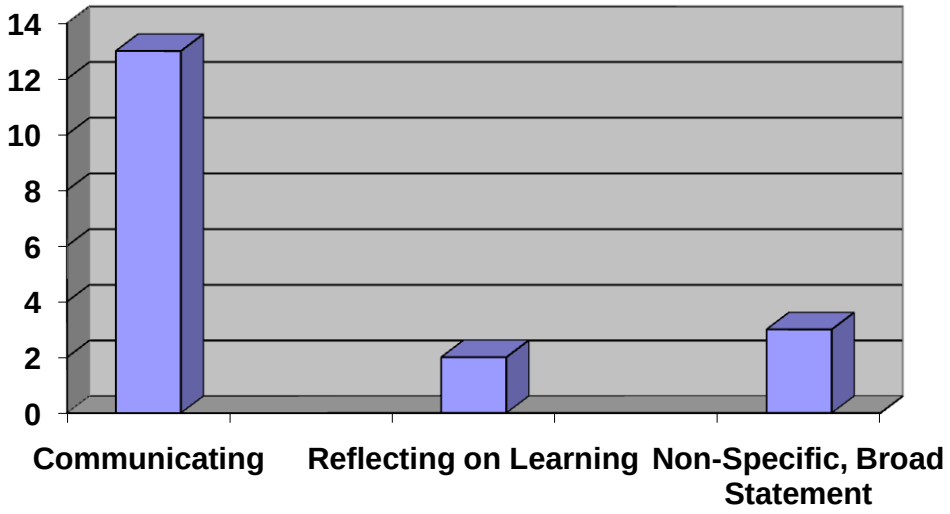

Figure 2. Student responses to survey question about what they liked most about writing in structured learning logs.

A comparison of the results of the survey with the frequency of student responses shows that, although students enjoyed communicating with their teacher more than reflecting on their learning, they did both. In fact, results from the frequency chart show that students explicitly reflected on their learning more than they wrote about communication-related topics. That said, the two often go hand-in-hand, as the following learning log response demonstrates: "One thing I don't understand is the mode and the range. I know what they mean, but I get it confused like which is which." This student is communicating with the teacher, and essentially asking a question. However, in asking the question, the student is also reflecting on her learning. Thus, the key components and results of this research study are often intertwined.

The results of this study showed communication with the teacher to be at the heart of the structured learning log process. The relationship had to be built before students could feel comfortable enough to reflect on their learning in a meaningful way. An analysis of the journal entries shows that, as the relationship between the teacher and the student evolved, students began to engage in more content-specific reflection. The following journal entry was taken from the first day of journal writing: "I work very hard everyday to do my work and homework. It is difficult for me to learn some kinds of subjects. I am not that good at science." The following journal entry was written by the same student near the end of the research project:

> What helps me learn the most is reading with the tape. It reads slow and fast, but I can still hear what my group is looking for. I learned about culture and nomads in Social Studies today. Why did people have to go to another country just to get food?

In the latter structured learning log entry, this student is citing specific instructional strategies that help her learn in class. She is also asking content-specific questions that she may have been too shy to ask in class. I responded to this journal entry with answers to some of this student's questions. Her subsequent entry shows her making meaning out of some of the topics we have been discussing:

> One thing I learned this week is culture and people who went out on ice and got mammoths to eat. The clothes they wear must be furry to keep them warm out in the cold. It is fun learning about nomads.

At the end of this study, as part of the survey, students were asked whether or not they thought writing in the structured learning logs helped their teacher better understand them. One hundred percent of them responded that it had. When asked why they felt that way, 84 percent of them wrote about student-teacher communication. Lister below are some of their responses:

- "I liked that it helped me communicate with you. Because usually I'm shy and I don't come out of my shell. After we started writing I started coming out of my shell."
- "It helped you understand me better."
- "I liked that we could get to know things about each other. Because other than talking to you in class, that's the only way I can communicate."

Several student survey answers also indicated that students were reflecting on their own learning, and structured learning logs provided a way to communicate with their teacher about their learning. One student wrote the following when asked about teacher responses to structured learning log entries: "I like it because they help me

understand things." Another student wrote the following: "I was having problems with some things, but now I get them."

Several learning log entries demonstrated students reflecting in concrete terms about how they learn and what strategies help them in the classroom. One student wrote the following: "I usually have to see it. Like, I need to see a multiplication problem before I can solve it." This response prompted me to use more visual examples and diagrams in my lessons. In a later entry, this student drew a picture of the diagram I had used that day and wrote the following: "When you explain things and draw it, sometimes I just get it right off the bat." This type of direct feedback from students helped me more directly meet the needs of my students.

Students did not always respond positively when asked about reflecting on their own learning. In response to a survey question about what they did not like about writing in their journals, one student wrote that she did not like writing "about how I learned." In response to a survey question asking why she felt this way, she wrote, "I am not used to sharing how I learn." This is the same student who showed so much metacognition in her structured learning log responses about social studies. This survey response shows that even when students do not enjoy reflecting on their own learning, they can be prompted to do so with success.

Structured learning logs are not only records of a student's metacognitive gains. As cited earlier, they can also serve as valuable tools that can allow teachers to better understand their students and meet their needs in the classroom. The following learning log entry demonstrates a student reflecting on his own learning process. This is evidence

that he is beginning to view learning as incremental. However, it was also a valuable insight into this student's personal struggle to learn:

> I just study hard and my mom and me tak the test intele I got them all right and if I didn't get them right I had to write them 3 times each. And so I did that and I got a pretty good grade and at the First colputoff weeks and I srugled a lot. So I desided to study more often so I will get a good grand and so I won't fael 4 grad and I won't to have a good yere and I won't to Be Smarter than I already am because I won't to Be like the others Because there smart [*sic*].

Although the results of this study indicate that structured learning logs can serve as valuable tools to promote student-teacher communication, the process does require a high level of commitment from the teacher. The findings of this study are based on a process in which the teacher responded to every structured learning log entry. For a class of 19 students, responding to every entry took approximately an hour and a half. Therefore, having students write in their structured learning logs twice each week requires a teacher time commitment of about 3 hours per week.

Conclusions and Recommendations

Conclusions

The results of my study show that structured learning logs have a positive impact on student-teacher communication. This communication empowers both students and teachers, enabling students to ask specific questions of their teachers and enabling teachers to better meet the needs of the students they serve. The results from this study also show that structured learning log questions and prompts can lead students to reflect on themselves as learners, thinking about how they learn and what strategies help them

both in and out of the classroom. These results address two of the problems that lead me to research the use of structured learning logs.

With regard to the third problem addressed in my study, the results are inconclusive. Although some learning log entries collected during this research project show students viewing learning as an incremental process, there is no evidence to indicate that writing in the structured learning logs brought about this understanding. This is an area in which further research could be done.

Recommendations

It is my recommendation that further research be done regarding whether or not the use of structured learning logs helps students to view learning as an incremental process. I believe that this could be possible at the elementary level, but would be interesting to study among middle and high school students, as well.

It is also my recommendation that more professional development be made available to teachers regarding the beneficial aspects of structured learning logs. The teacher-generated questions for these logs go beyond writing prompts. They are comprised of specific, targeted questions aimed at leading students to reflect on themselves as learners and communicate with the teacher about the learning process. I believe professional development is key to helping teachers become aware of some of the benefits these logs provide for themselves and for their students. Journal writing is recommended by educational professional organizations as a tool that enhances students' writing skills. However, professional development is needed to alert teachers to the added benefit of student-teacher communication. Grant money could be obtained that would fund some of these workshops or further research in this area.

Technology could be used to enhance structured learning logs by enabling students to write to their teachers on the computer. Teachers could respond electronically, a process that might save time and would definitely avoid the cumbersome process of taking home the learning logs in notebook form.

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Appendix A

Student Survey

1. Did you learn anything about how you learn by writing in your journal? Circle one. YES NO

2. Do you think the journals helped your teacher understand you better? Circle one. YES NO

   Why do you feel this way?

   _____

   _____

   _____

   _____

3. How did you feel about what your teacher wrote in your journal?

_____

_____

_____

_____

_____

4. What did you like about writing in your journal?

_____

_____

_____

5. What did you not like about writing in your journal?

_____

_____

_____

6. Why do you feel this way?

_____

_____

_____

7. Let me know if there's anything you would change about the journals.

   Write your answer here.

_____

_____

_____

_____ Thank you for your help! ☺

Appendix B

First Structured Learning Log Question Set

What is a goal?

_____

_____

_____

_____

What are some of your goals for this year?

_____

_____

_____

_____

What would you like your teachers to know about you and how you learn?

_____

_____

_____

_____

Using the News to Impact Motivation and Science Literacy

Among Ninth-Grade Biology Students

Susan P. Tuckniss

Education 590, Fall 2006

The University of Tennessee at Chattanooga

The Institutional Review Board of the University of Tennessee at Chattanooga (FWA004149) has approved this research project #06-115.

Introduction to the Problem

The coverage of science-related issues in the media is increasing every year. Burning issues related to science topics such as gene technology, the environment, and Darwin's theory of evolution are often headlines in the newspapers, as well as the topics of conversation at the dinner table. With so much exposure to scientific information and science specific terminology, it seems that scientific language is becoming part of everyday conversation. Reading, understanding, and speaking about science are critical to science literacy. Literacy, in general is a much-discussed topic in the educational arena. According to Lloyd (1996), the definition of science literacy is changing with the demands of society. He explains that the focus is shifting away from the mere acquisition of information to active engagement in scientific query stimulated by curiosity and creativity which promotes critical thinking and problem solving. Former NASA scientist, Mae Jemison, refers to science as "the attempt to understand our world" through "curiosity, creativity, critical thinking and discovery" (Jemison, 2000, ¶ 2).

Science teachers, who encourage students to read, understand, and respond critically to media reports of science issues, can, perhaps, promote students' perceptions of the relevance of the subject. This perceived relevance can stimulate both curiosity and genuine interest in understanding the world around them. Science articles in newspapers and magazines are accessible, timely, and short; they can be read in one sitting or a class period. A good article that is eye-catching and interesting can provide students with a science-related reading experience that is part of the real world and might even turn kids on to the content. Science media articles can force students to grapple with how science words are related to each other and to the subject they are studying. An interesting

science article can challenge students to critically analyze a topic of study. Supplementing the textbook with related articles can help students gain a broad perspective and an in-depth sense of their subject. Today's science students need to develop an authentic science language in order to understand science information in the modern world.

Teachers can use newspaper and magazine articles to model and practice literacy strategies. Lessons focusing on newspaper and magazine science encourage and extend both reading and writing activities and, therefore, can improve scientific literacy (Daniels & Zemelman, 2004). This action research project attempts to measure the effects of teaching strategies utilizing newspaper science in regard to student motivation and improved science literacy. Science media articles can be excellent tools to support teaching and learning in science and provide relevant links between classroom science and everyday life.

Review of Literature

According to Miller (2005), students' attitudes toward science often indicate that they think science is merely a body of knowledge rather than a way to generate new knowledge or solve problems having to do with everyday life. As the general public is forced to interpret more and more scientific information in the media, it is vital that our students "get a grasp of the language of science to be informed citizens." Lloyd (1996) reports that many science teachers regularly rely on science textbooks alone for their curriculum. He suggests that this type of curriculum typically focuses on the facts at the expense of higher-level thinking. It seems that science teachers need to go beyond teaching pertinent vocabulary to make sure their students develop a complete

understanding of the subject they are studying. Daniels and Zemelman (2004) suggest that students typically read too many textbooks and not enough real books and articles that can ignite genuine interest and curiosity about the subject matter. Science teachers can contribute to the campaign for improved science literacy when they create activities in which students actively examine, discuss and write about their science experiences (Miller, 2005).

Newspapers and magazine articles represent a major source of science knowledge for the reading general public; consequently, there is a strong case for encouraging science students to read newspaper and magazine science with a critical eye. Jarman and McClune (2001) suggest that these sources can be a useful addition to the science curriculum. Teachers that apply reading strategies using science articles help students apply the reading that they do; in the process, they learn to use their minds more effectively as they read (Daniels & Zemelman, 2004). Daniels and Bizar (2005) propose that students who critically evaluate texts learn to construct meaning and elaborate on their understanding; furthermore, they begin to connect topics to similar situations in daily life. This information suggests that students engaged in genuine interpretation and evaluation of relevant science articles learn to think and speak about science and become more scientifically literate.

Mae Jemison, America's first female African-American astronaut, is a chemical engineer, physician, and professor of environmental studies at Dartmouth College, and the founder of The Earth We Share, an international science camp for students. She serves as the national science literacy advocate for Bayer Corporation's Making Science Make Sense initiative. When discussing the importance of science literacy she proposes,

"perhaps, we do not need a million nuclear physicists, but we do need 200 million citizens who can read a science-related newspaper article, understand it, and vote responsibly on its issues" (Jemison, 2000, ¶ 5). She suggests that our country needs leaders that can respond critically to topics including health, environment, and agriculture, in order to compete globally.

Researchers in Northern Ireland (Jarman & McClune, 2001, ¶ 25) found "creative exploitation of newspaper science" to be effective in helping students acquire a broad general understanding of important science issues and relate science to everyday life. They suggest a case for encouraging science students to read newspaper science with a critical eye. House (2002) found positive correlation between using things from everyday life and increased student motivation, and suggests that teachers should consider students' beliefs and attitudes in order to develop effective instructional experiences. Silbey (1999) proposes that newspapers can promote problem solving across disciplines such as language arts, social studies, math, and science.

Daniels and Zemelman (2004) suggest that modeling and practicing literacy strategies using newspaper science will help to create a literacy-learning environment in science classrooms. Boxie and Maring (2002) found that, as students practice literacy strategies, they improve in metacognitve awareness and learn to assess their own learning.

Data Collection and Results

Data Collection

Subjects

This study evaluated 9th-grade Honors Biology students at a rural school in Hamilton County, north of Chattanooga, Tennessee. Incoming 9th graders are students in the freshman academy, a "school within a school," and are somewhat sequestered from the upper school students. Fifty-one percent of the school's 350 students qualify for a free lunch program. Eleven students were included as subjects of this study. Of the 11 students, there were 9 females and 2 males. Eight were Caucasian; three were African-American. The students elected to participate in the Honors Biology class and were not required to meet any special academic requirements or prerequisites. The entire sample of students completed the questionnaire and kept a diary of newspaper articles and related activities. Interviews took place between the teacher/researcher and all 11 students individually.

Methodology

This research project was designed to explore the effectiveness of teaching strategies that connect media science articles, classroom science, and subject-related literacy. It was designed to measure the effects (in terms of student motivation, perceived relevance, and improved science literacy) when newspaper and magazine articles were used systematically on a weekly basis. It was designed to take advantage of accessible texts to promote the subject of science and general science literacy.

The teacher/researcher introduced two to three newspaper and magazine articles per week that were relevant to the unit of study. The teacher modeled literacy strategies. Students read and critically evaluated these articles using a variety of literary strategies and activities. Students kept a diary of science issues relating to the unit of study for the eight-week study period. Students elected to continue their diaries beyond the research

period for a grade at the end of the term. The teacher/researcher attempted to create a true literacy-learning environment in the science classroom.

Exposure to literacy strategies using science articles took place over a long period of time to establish coherence. During the research period, the teacher/researcher persistently observed the subjects to establish credibility. Descriptive data was collected and overlapped in three different ways (questionnaire, interviews, and diaries) so as to insure stability, dependability, and confirmability.

The instruments to collect data were designed in such a way to promote factual accuracy. Questions were designed so as not to distort students' attitudes or abilities, but to accurately represent the subjects' perspective. Questions for interviews and the questionnaire were carefully designed to help the teacher/researcher accurately gauge and measure the motivation of students, their attitudes towards the relevance of the subject, and whether they felt that they had improved in science literacy. In order to accurately measure student motivation, the questions were designed so that answers would reflect whether students thought newspaper science helped them to see relevance in the subject and a connection between science and their everyday lives. Certain questions were designed to target whether students felt that newspaper science helped them improve in science literacy; in other words, the questions asked whether the students felt better equipped to critically think about and analyze a science topic.

Results

The questionnaire was scored on a forced response Likert scale. Students were asked to indicate whether they strongly agree (SA), agree (A), disagree (D), or strongly disagree (SD) with 10 statements pertaining to the relevance of science and their own

improvement in science literacy. The following point values were assigned for responses: SA = 4, A = 3, D = 2, SD = 1. A high point value on a positively stated item indicates a positive attitude about the use of newspaper science in terms of motivation, relevance, and improved science literacy. The quantitative results from the survey are reported using descriptive numerical data and accompanying narrative.

Responses to the interview questions are reported in narrative form. Notes from the students' diaries are also presented in narrative form; student diaries will be assessed at the end of the term using a rubric.

The questionnaire

Figure 1 presents each question and the mean point value for the responses. Figure 2 presents the Likert scale numerical data in a graph.

1. Science articles in the news link science to everyday life.	3.4
2. Science articles in the news promote an interest in science.	2.9
3. Science articles in the news reinforce school science.	2.7
4. Science articles in the news relate science to local issues.	3.1
5. Science articles in the news promote science literacy.	2.7
6. Science articles in the news encourage pupils to be well-informed.	2.7
7. Science articles in the news promote critical evaluation.	2.7
8. Science articles in the news helped me to improve in critical thinking related to the science topic	2.8
9. Science articles in the news helped me to improve in problem-solving related to the science topic.	2.6
10. Science articles in the news helped me to analyze science topics.	2.8

Figure 1. Questionnaire and mean value points.

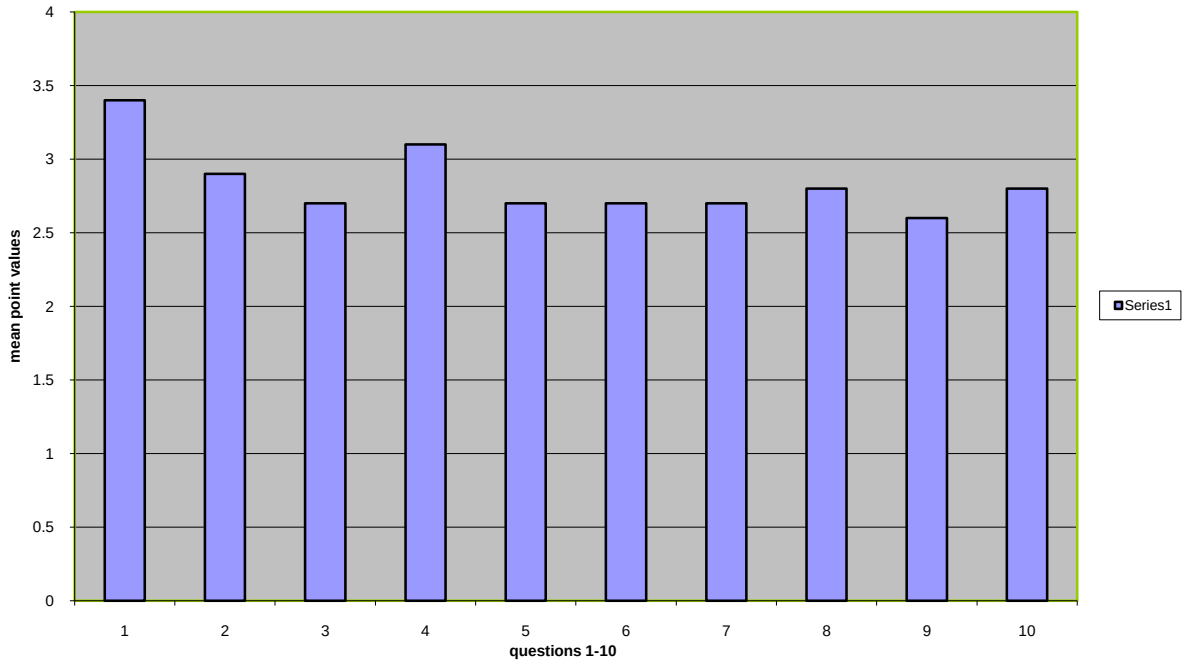

Figure 2. Questions 1-10 and mean value points.

The total mean score for the questionnaire was 2.8. Questions 1-4 were designed to assess students' motivation and attitudes about the relevance of science, whereas, questions 5-10 were designed to allow students to assess their own improvement in science literacy. Responses to questions 1-4 had a mean point value of 3.0, indicating most of the students either agreed or strongly agreed that newspaper science helps to promote the relevance of the subject and links classroom science to personal interests, everyday life, and local issues. Responses to questions 5-10 had a mean point value of 2.7, also indicating that, in general, some of the students felt improvement in science literacy. It is important to note that 10 of 11 students agreed that science articles in the news link science to everyday life, and 9 of 11 students believed that science articles promote an interest in science. Eight of 11 students agreed that science articles in the news reinforce school science, and 10 of 11 students felt that the articles relate science to

local issues. Only 5 of 11 students felt that science articles in the news promote science literacy, and only 6 of 11 students felt well-informed. Six of 11 students felt that science articles promote critical evaluation, and 7 of 11 students felt that the articles helped them to improve in critical thinking related to a science topic. Only 5 of 11 students thought they had improved in problem-solving; however, 7 of 11 students agreed that science articles in the news helped them to analyze science topics.

The Interviews

The responses to interview questions express students' opinions and attitudes about using media articles to supplement the science curriculum. Five interview questions were asked; positive and negative responses follow each question.

1. Did the use of newspaper and magazine science activities help you to see relevance in studying science in the classroom?

   Positive responses

   "Yes, if we didn't read about this stuff, we wouldn't understand life or the world."

   "The articles did link to what we were studying in the classroom which helped me understand better."

   "Yes, because we learn stuff that we think is pointless; then we see it in the news and it makes us want to listen more."

   "Yes, the articles helped me because after we talk about something in class and then read an article talking about the same thing, it helped me understand it better."

   "Yes, the articles kind of helped me relate it to everyday life."

"Yes, because the articles are usually about something interesting in science."

Negative responses

"To me, it really didn't help, but it did make me think more about science."

"Maybe just a little bit."

"Not really."

2. Did the use of newspaper and magazine science activities connect science to real life?

   Positive responses

   "Yes, it shows me that what we learn in class actually happens in real life."

   "Yes, because everything we read was about science in real life."

   "Yes, because we read about the same things we were learning in class."

   "Yes, the newspaper article on chiggers really connected classroom science to real life."

   "Yes, everything that has to do with science is all around us."

   "Some of it did, like the article on the fossil of little girl who lived three million years ago."

   "Yes, because it came from the newspaper."

   Negative Response

   "A little bit but not really that much."

3. Did the use of newspaper and magazine science activities encourage you to analyze and think critically about a particular science topic?

   Positive responses

   "Yes, I think more about everything."

"Some of the articles really made me think hard about a subject."

"Yes every article that we read made me want to learn more about the subject."

Negative responses

"No because I didn't understand them."

"No because many of the words I didn't understand."

"No, not really; they just made me think a little more but not a lot more than usual."

4. Did the use of newspaper and magazine science activities improve your problem-solving skills?

   Positive responses

   "Yes, it made me think about the ways that I could help solve the problems."

   "Yes, it kind of did because it helped me understand science a lot more."

   "Yes, I have a big problem speaking in front of people, and we had to discuss the articles which helped me a lot."

   Negative responses

   "No, the things we were reading were not that interesting."

   "No, because the articles were confusing."

   "Not really."

   "No, I don't think that science really helps me that much in the problems I have to solve."

5. Do you feel that your general science literacy has improved as a result of using newspaper and magazine activities?

   Positive responses

"Yes, it has opened my eyes to the closeness of science to and around me, and has shown me important issues that can only be solved through science."

"Yes, reading these articles about what is happening in real life shows me more about the topic/problem."

"Yes, because I'm getting a better picture and a better meaning of science and everyday life."

"Yes, just knowing that other people really study this stuff makes me feel better."

"I feel my general literacy has improved a great amount."

Negative responses

"No because the words are too hard and too big to remember."

"No I don't think it has."

"No I haven't improved very much."

Selected comments from the diaries

"My reading skills are getting better because I've learned how to look at things in a different way."

"I'm learning to write better about what I am reading."

"Doing this is making it easier for me to talk out loud about stuff."

"I'm paying more attention to what I am reading."

"I can tell people about this because I'm learning new information."

"My literacy skills can really use some work."

"My reading and writing skills have improved dramatically."

"My vocabulary is increasing."

"I felt good about discussing this article with my parents."

"I'm starting to pay more attention to the news now."

"My spelling is getting better."

"This diary is helping me in English class, too."

"This article really made me think."

Conclusions and Recommendations

Conclusions

The purpose of this research project was to investigate whether using science media articles in the classroom positively impacts students' motivation and literacy skills. The results of the questionnaire seem to indicate that the majority of my students felt positively about the use of articles in the classroom, especially in terms of connecting classroom science to everyday life. In this study, I must assume that, when students are able to connect a school subject with their real life, they will see its relevance and be motivated. Questions 1-4 of the questionnaire focus on this connection and perceived relevance; they ask directly (question 1) and indirectly (questions 2-4) for a positive or negative response. The average response for these four questions was 3.0, indicating an overall positive attitude in this regard. Ten of 11 students agreed that the articles link science to everyday life. The responses to interview questions 1 and 2 were generally very positive, with the exception of a few; my students' answers seemed to reflect genuine positive feelings about our work using media articles. I conclude, therefore, that science media articles are potential linkages between the textbook and the real world.

Responses to questions 5-10 had a mean point value of 2.7, indicating that some, but not all, students felt some degree of personal improvement in science literacy;

approximately half of the students were not convinced that the articles helped them improve their literacy skills, specifically related to critical thinking, analysis, and problem-solving. The responses to interview questions did, however, reflect a more positive overall attitude than did the responses to the questionnaire. The positive responses were substantial enough to convince me that many students felt some degree of improvement. It is important to note that most of the students who responded negatively seemed to do so because they lacked understanding or were confused by the articles.

When reviewing my students' diaries, certain entries confirmed for me that media science articles can be a viable addition to the science curriculum. For brevity's sake, I included only those responses. The words of my students strongly encourage me to continue searching for good articles that apply to each unit of study and to use these articles in various activities that practice and promote general literacy skills.

Recommendations

It is difficult to say whether the attitudes and words of my students can be generalized to a larger population; however, my research results combined with the review of literature seem to indicate that students, in general, are more motivated to learn a subject when they see its relevance to their lives. After several weeks of my finding articles for students to read, I was pleasantly surprised when the students started finding articles on their own. I can only assume that the students were motivated by genuine curiosity and interest. I would like to think that students in other classroom settings would respond in much the same way when exposed to interesting and relevant media articles.

The National Science Teachers Association has not made an official position statement on using media science articles in the classroom; however the NSTA supports science literacy through its Toyota TAPESTRY Grant Program. The program recognizes outstanding science teachers who provide students with hands-on, relevant exposure to science. In 2002, TAPESTRY added a new entry category to the program: Literacy and Science Education. The category supports the development of literacy skills in the context of science teaching and learning. Each year, TAPESTRY awards 50, 1-year grants of up to $10,000, and a minimum of 20 "mini-grants" of up to $2,500.

At the local level, general literacy is a priority in our school system. Our school has a full-time literacy coach. I have shared my research with her, talked with her at length about strategies and activities, and have her full support. She has suggested a number of grants available to promote science literacy.

Interesting media articles can be used in any classroom and with any subject. Literacy teaching strategies can be presented to a faculty as part of regular professional development.

It would have been easy to expand my research to include the use of technology to promote general science literacy. I often use science videos to support lessons and find them to be tremendous resources. Computer technology can be integrated into reading and writing about science in a number of different literacy projects. Electronic texts are readily accessible in most school classrooms or media centers. Literacy strategies can be easily embedded in any number of Web-based projects.

This research project materialized out of my desire to promote general literacy in the classroom. As a high school science teacher, I have, at times, felt my hands tied

because of the poor literacy skills of my students. In this study, most of the negative responses to the interview questions indicate that some of my students struggle when reading media articles, many of which are taken from daily local newspapers. Students that struggle to read the daily newspaper are most likely going to struggle to read any high school science textbook. The popularity of science seems to be on the increase, and science articles will most likely continue to make the news on a daily basis. Media articles are timely and short enough to incorporate into any daily lesson plan. These articles are great resources for practicing literacy skills and for reinforcing a science topic. I especially recommend using articles during block scheduling, when the 90-minute class period can be broken into 30-minute segments; activities using the articles change the pace of the class and add a flavor of current events. Media articles can stimulate classroom discussions; they are great homework assignments. It is important to note that articles should not be too long or too difficult. I often read the articles aloud using the overhead projector, sharing my thoughts and clarifying as I go along; students then revisit the article on their own. This is a popular strategy in my classroom.

I want my students to share my interest and enthusiasm for science; that may never happen, but getting out of the textbook and reading about science in a different genre might just tilt the odds in my favor.

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Appendix A

Student Questionnaire

Please rate how strongly you agree or disagree with each of the following statements by placing a check mark before the appropriate word.

1. Science articles in the news link science to everyday life.
____strongly agree ____agree ____disagree ____strongly disagree

2. Science articles in the news promote an interest in science.
____strongly agree ____agree ____disagree ____strongly disagree

3. Science articles in the news reinforce school science.
____strongly agree ____agree ____disagree ____strongly disagree

4. Science articles in the news relate science to local issues.
____strongly agree ____agree ____disagree ____strongly disagree

5. Science articles in the news promote science literacy.
____strongly agree ____agree ____disagree ____strongly disagree

6. Science articles in the news encourage pupils to be well-informed.
____strongly agree ____agree ____disagree ____strongly disagree

7. Science articles in the news promote critical evaluation.
____strongly agree ____agree ____disagree ____strongly disagree

8. Science articles in the news helped me to improve in critical thinking related to the science topic.
____strongly agree ____agree ____disagree ____strongly disagree

9. Science articles in the news helped me to improve in problem-solving related to the science topic.
____strongly agree ____agree ____disagree ____strongly disagree

10. Science articles in the news helped me to analyze science topics.
____strongly agree ____agree ____disagree ____strongly disagree

Appendix B

Interview Questions

Students will be asked to answer the following questions in just a few sentences.

1. Did the use of newspaper and magazine science activities help you to see relevance in studying science in the classroom?

2. Did the use of newspaper and magazine science activities connect classroom science to real life?

3. Did the use of newspaper and magazine science activities encourage you to analyze and think critically about a particular science topic?

4. Did the use of newspaper and magazine science activities improve your problem-solving skills?

5. Do you feel that your general science literacy has improved as a result of using newspaper and magazine science activities?

Appendix C

Diary Reflection Questions

Answer the following questions in complete sentences.

1. In this article I learned…..

2. What I found difficult to understand in this article was…..

3. My reading and writing skills…..(reflect on them and your efforts, strengths, and weaknesses).

4. When discussing this article, my listening and speaking skills…..(reflect on them and your efforts, strengths, and weaknesses).

5. Did this article challenge your thinking in any way? Explain.

6. Can you make connections between the article and everyday life?

7. Write down three questions you have for the author of this article.

8. What are you learning about yourself from reading this article?

Appendix D

Diary Assessment Rubric

Outcome Assessed	Unsatisfactory	Limited	Satisfactory	High
	1	2	3	4
Number of articles included in diary	0-3	4-5	6-8	9-12
General response to questions	Little or no response is made	Response is limited—student makes minimal effort	Student demonstrates genuine effort to respond to questions	Student demonstrates superb effort to respond to questions
Use of examples and details to support answers	Student's response does not include examples or details	Student's response includes minimal examples or details	Student uses a fair amount of examples or details	Student consistently includes examples and details

Fostering Communication Using Seating Arrangements and Student-Led Discussions to Facilitate Classroom Discussion

Victoria Vaughn

Education 590, Fall 2006

The University of Tennessee at Chattanooga

The Institutional Review Board of the University of Tennessee at Chattanooga (FWA004149) has approved this research project #06-134.

Introduction to the Problem

Discussion can be an important tool in the literature classroom. Larson (2000) found that one teacher felt, "when students are interacting with each other they're pooling their skills and knowledge, and their ability to present ideas verbally" (p. 668). Students must use their textbook knowledge and their courtesy knowledge to present ideas to which other students will be receptive.

Review of Literature

Literature discussion can also help students learn to be fair and objective. Learning to hold an open discussion, without criticizing others, and also valuing what others have to say, can teach a student skills they will need in the college classroom and also in their careers. It is important to know how to give one's input without discouraging or condemning others.

Larson (2000) stated that, "the process of dialogue, or exchanging ideas, is fundamental to a democratic society. If they can do it in this artificial environment, then I think I'm guaranteed that they will continue those kinds of dialogue" (p. 666). Not only can students benefit concerning the topic being discussed, but they also learn how to relate to others and problem solve. Larson believes that, without the ability to discuss well, we cannot be a democratic society. Without equal exchange of ideas, the world will be one-sided. He also believes that this ability to discuss has to be fostered in the classroom at an early age. The goal, however, is to determine how to efficiently motivate that discussion, and Bode and Krolokke (1995) outline four characteristics that can foster communication: (a) students should learn that they are accountable for the things they say, (b) students should present their opinions and findings objectively, (c) students

should reveal their information sources, and (d) students should "allow and encourage diverse viewpoints" (p. 2).

These are four characteristics that can be beneficial to literature discussions. With proper knowledge and skills, literature discussions can help students learn to express themselves, and also learn to tolerate others whose viewpoints may be different. Knowing that a student is accountable for what he says can help him learn to think before he speaks; this coincides with revealing information sources. Revealing where one gets his information can make someone more credible; in order to be happily held accountable, one must be credible. Besides these four skills, what can a teacher do to try to foster communication in his classroom? Two theories are circular seating arrangements and student-led discussions.

Circular Seating Arrangements

Barton, Heilker and Rutkowski present an important factor in fostering communication. The teacher must "control and use classroom space strategically" (¶ 14). This means breaking down the classroom structure and forming a circle of students; this opens up the classroom. "Make sure everyone can see each other" (Gottschalk, 2001, ¶ 10), and no one can hide behind another. The teacher can access the students easier, and by joining the circle, the teacher purveys that he wants to be part of the discussion rather than just observe it. "People tend to talk to the person sitting opposite them, [and] people sitting next to each other tend not to talk to one another" (Davis, 1993, ¶ 4). The person sitting in the least crowded, most central part of the room tends to emerge as the leader.

Not only will circular seating arrangements encourage students to talk to others (to whom they may normally not speak), but it can also help foster student-led discussions by having a leader emerge on his own.

Student-Led Discussions

Many times, teachers end up being the leaders of classroom discussion. They take on the role of "outsider" by asking questions, instead of immersing themselves into the discussion with the students. Because of the question/answer format that can override teach-led discussions, many times it is a more viable option to let one or two students lead the discussion, themselves. Davis (1993) recommends assigning roles to the students in the class, one being the role of the leader. "During the class the leaders assume the responsibility for generating and facilitating the discussion" (¶ 11).

How does having a student lead a discussion actually cause other students to discuss? Muller (2000) feels that, "since the participants and facilitators are of relatively equal status, it would seem in the interest of both parties to work with each other in continuing the discussion for the entire class period" (p. 19). Whether or not this is the case, McCoy (2000) performed a study that found, "those methods that squarely placed discussion into the students' realm worked best in facilitating true back and forth exchanges about literature" (p. 59). Student-led discussion seems to help students talk. However, even if they are talking in the class, how can anyone be sure that this method is beneficial?

Concerns About Student-Led Discussion

There are major concerns about the efficacy of student-led discussion. One major concern is, "with the material being discussed—to make sure discussion is meeting the

educational goals for the class" (Muller, 2000, p. 3). It is possible that some student-led discussions will not be as fruitful as others. However, Bond (2001) and Pelz (2004) have had wonderful results with student-led discussions.

Bond (2001), who worked with fifth graders, found that students began making real connections in their literature discussions. What may, at one point, be seemingly superficial (a discussion about picking scabs), can turn out to be an important part of the novel and discussion (the theme of friendship in a novel). Likewise, Pelz (2004), who works with college students, found that his students "quickly learn to ask thought-provoking questions which address the salient issues presented in the textbook" (¶ 9). Whether the students be in elementary school or in college, student-led discussions seem to be an effective format to promote classroom discussion.

Research Questions

Based on the above, my goal is to explore whether a circular seating arrangement and student-led discussions will help students discuss "openly" and "effectively." It has been the experience of many that these techniques, by themselves, aid the students in discussions; I want to determine if both methods together will aid students in a significantly positive way.

"Openly" refers to the uninhibited speech patterns of students. "Effectively" refers to a discussion which is a learning benefit, relevant to the topics and respectful of all others' opinions and interpretations.

Student-led discussions are those in which one or two students guide the discussion for the class period. Topics are given to the leaders 1 week before the class discussion so that they have an adequate amount of time to prepare.

Data Collection and Results

Data Collection

Subjects

My subjects will be high school students in a typical suburban inclusion literature classroom. There will be approximately 25 students in the class. Most will be under the age of 18. Parental permission will be required for subjects under the age of 18. I am anticipating that the class will be 50 percent male, 50 percent female, 30 percent minority, and 70 percent Caucasian.

Methodology

In the beginning, students will be given a survey consisting of two questions: how often do you speak during a class discussion (answers to choose from are never, sometimes, often, or very often), and how comfortable are you speaking during a class discussion (answers to choose from are not at all comfortable, somewhat comfortable, comfortable, or very comfortable). Students will be involved in a 30-minute discussion about a piece of literature, with no factors introduced. Participation will be monitored by the frequency of comments for each student; a running tally will be kept. Efficacy of the discussions will be gauged by test scores. Each test will consist of 25 multiple choice questions (worth 50 points, total), and two essay questions (worth 50 points, total), which will be based on the topics discussed in class.

The first factor to be introduced will be the circular seating arrangement. Once again, the participants will be monitored by the frequency of responses and test scores.

The third phase of the study will maintain the new seating arrangement but will also introduce the student-led discussions. Participation will be measured by frequency of responses and test scores.

All phases of the study will be completed twice before the next phase is introduced. This will ensure more consistency within the study. If there is a great variance between the two trials of the same stage, results from this stage will be noted and accepted as failure.

The last test of the study will be the original survey, given again. Survey results from the beginning and end of the test period will be compared, as well as data gathered from each of the tests and the amount of times students spoke in class.

Results

Due to time constraints, certain factors were modified or omitted. Student response frequency has been omitted. Quizzes remained; however, they did not contain essay questions.

Previous to phase one, students were given a student assent form and, because students were under the age of 18, parents were given a consent form. Out of a class of 20, 18 students returned both the assent form and consent form. The results of this study are bases on the 18 students who returned both forms.

Before any factors were introduced, students were given a questionnaire (see Appendix A). The results were as follows: 0 percent of students claimed they "never" spoke in class (Q1A), 39 percent claimed they spoke "sometimes" (Q1B), 3 percent "often" (Q1C), and 8 percent claimed they spoke "very often" (Q1D) (see Figure 1). On the second question, "How comfortable are you speaking during a class discussion," the

students responded as follows: 6 percent were “not at all comfortable” (Q2A), 19 percent were “somewhat comfortable” (Q2B), 14 percent “comfortable” (Q2C), and 11 percent “very comfortable” (Q2D) (see Figure 1).

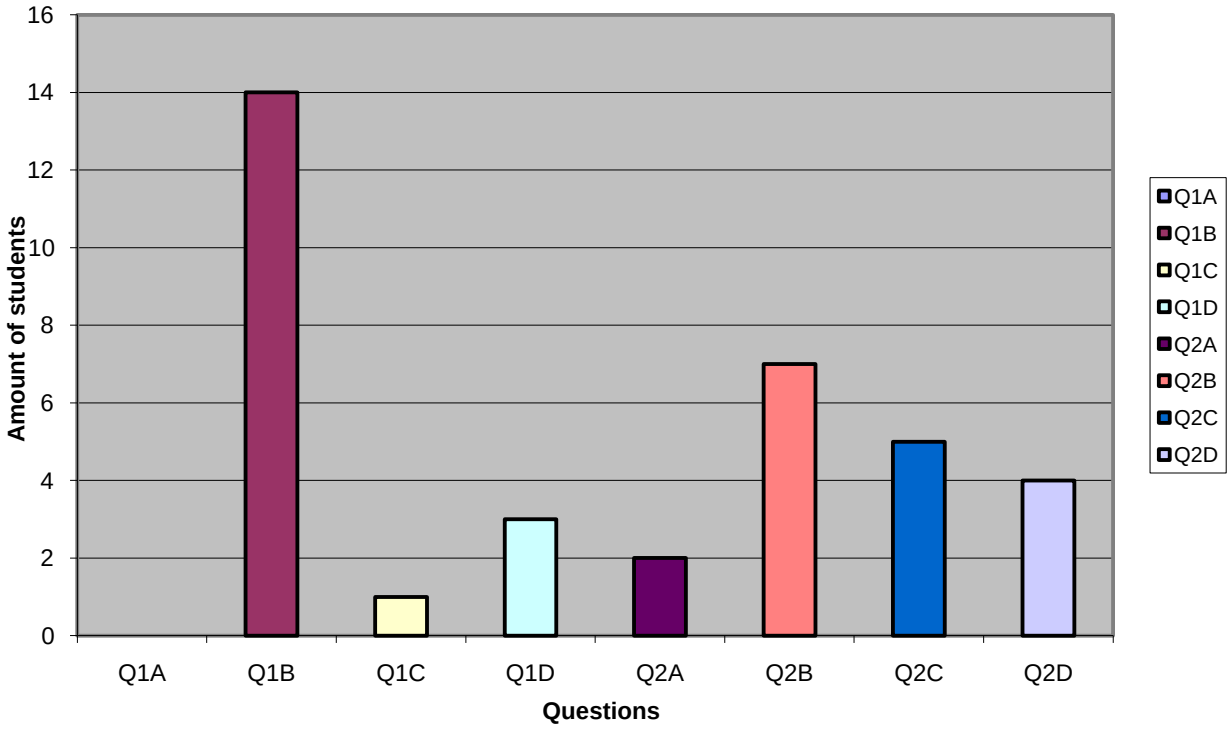

Figure 1. Student answers to the pre-factor questionnaire.

Phase one, as stated previously, contained no factors. In this phase, run twice for consistency (see Appendices B and C), percentage wrong, as a class, was 34 percent and 29 percent (see Figure 2).

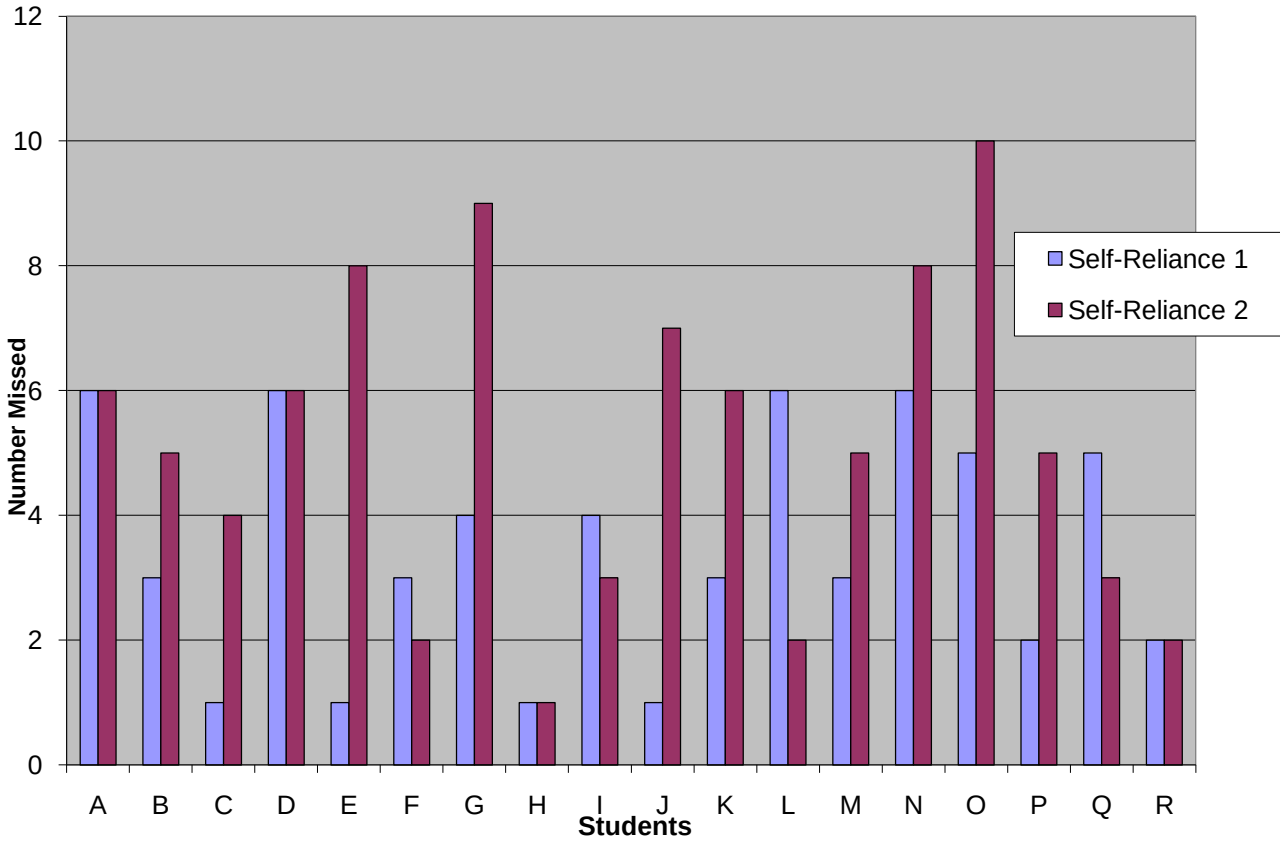

Figure 2. Number of questions missed for phase 1 tests.

Phase two of the study used a circular seating arrangement. Student desks were put in a circle for the duration of the class period. This phase was also run twice for consistency (see Appendices D and E). The first time this phase was run, the participants averaged 23 percent wrong. The second time this phase was run, the participants averaged 31 percent wrong (see Figure 3). This phase of the study was accepted as a failure.

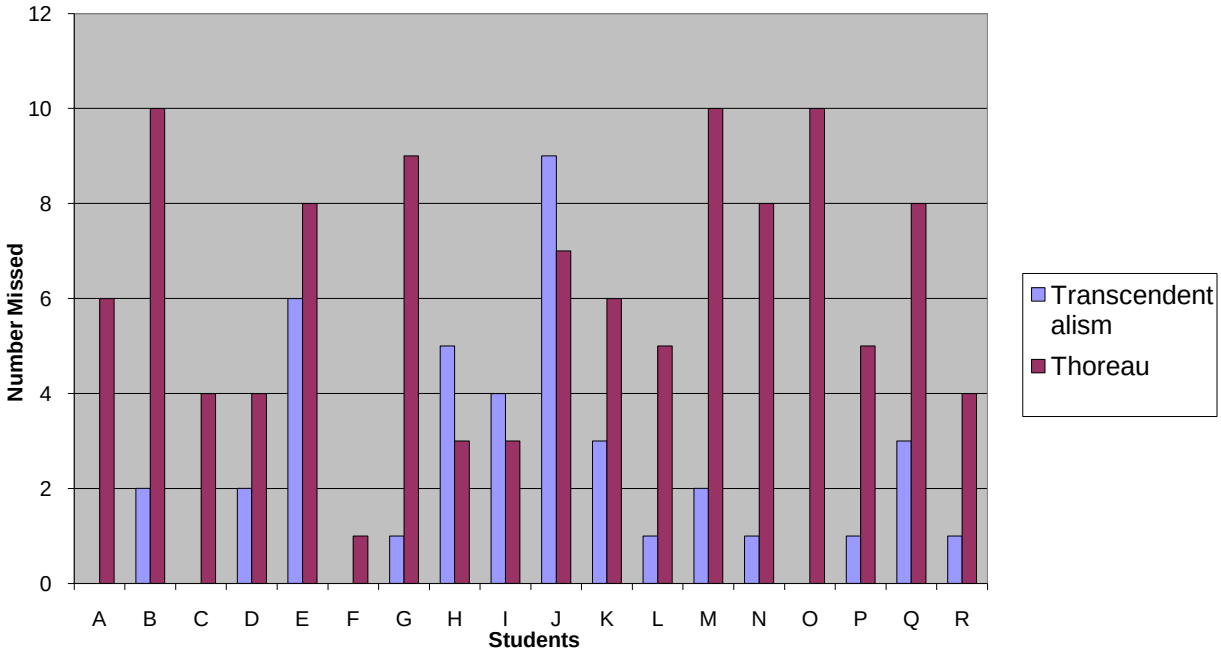

Figure 3. Number of questions missed for phase 2 tests.

For the third phase of the study, the seating arrangement was kept, but students led the discussions. As before, this phase was run twice for consistency (see Appendices F and G). The results were as follows: the students averaged 10 percent wrong on the first test and 15 percent wrong on the second run (see Figure 4).

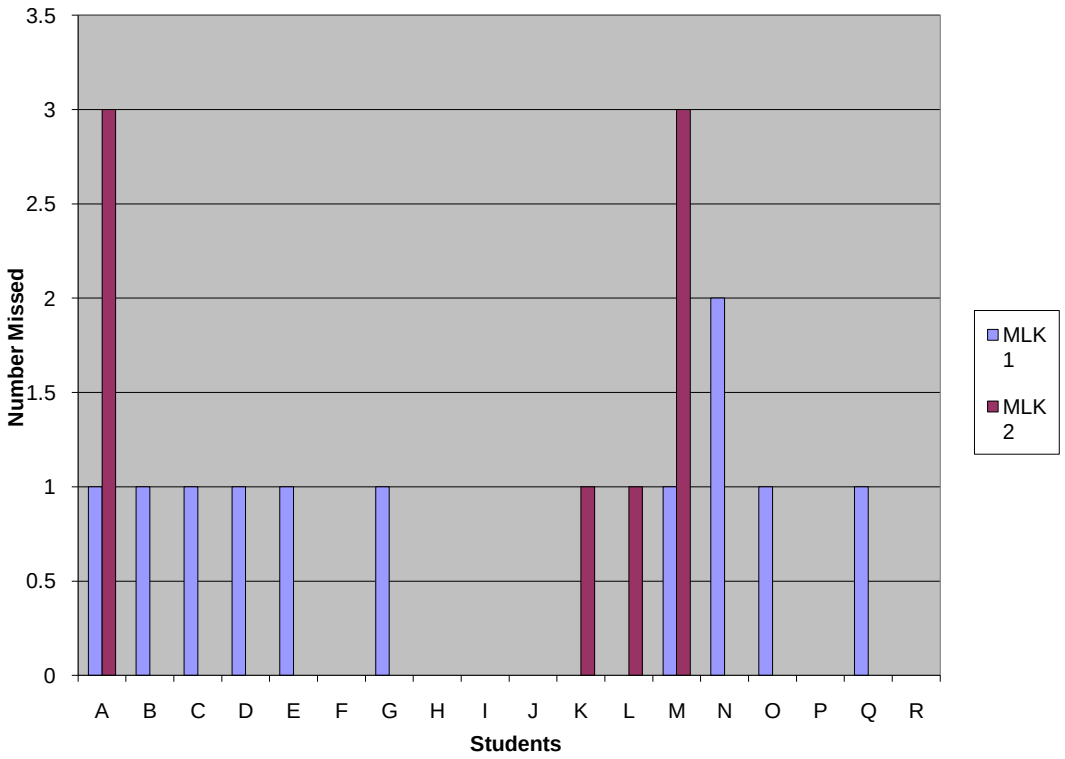

Figure 4. Number of questions missed for phase 3 tests.

Finally, the questionnaire (see Appendix A) was given again and the results were as follows: 3 percent claimed they "never" spoke in class (Q3A), 31 percent claimed they spoke "sometimes" (Q3B), 14 percent claimed they spoke "often" (Q3C), and 3 percent claimed they spoke "very often" (Q3D). When asked how comfortable the students were speaking in class, 3 percent said, "not at all comfortable" (Q4A), 19 percent said "somewhat comfortable" (Q4B), 17 percent said "comfortable" (Q4C), and 11 percent said "very comfortable" (Q4D) (see Figure 5). When compared to the results taken before the study, speaking in class "often" and "very often" increased six percent. Though the percentage for "very often" decreased slightly, the percentage for "often" increased 11 percent, on its own. The percentage for being "very comfortable" speaking in class

remained the same, however, being “comfortable” speaking in class increased three percent (see Figure 6).

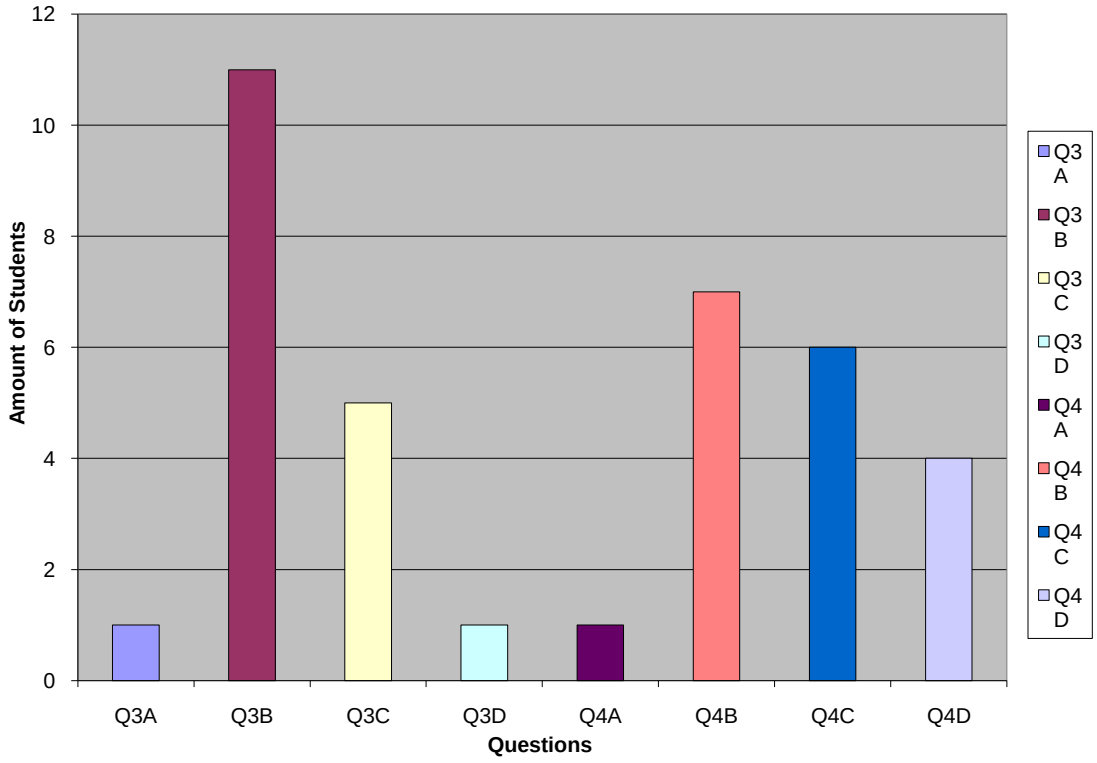

Figure 5. Student answers to questionnaire after study was completed.

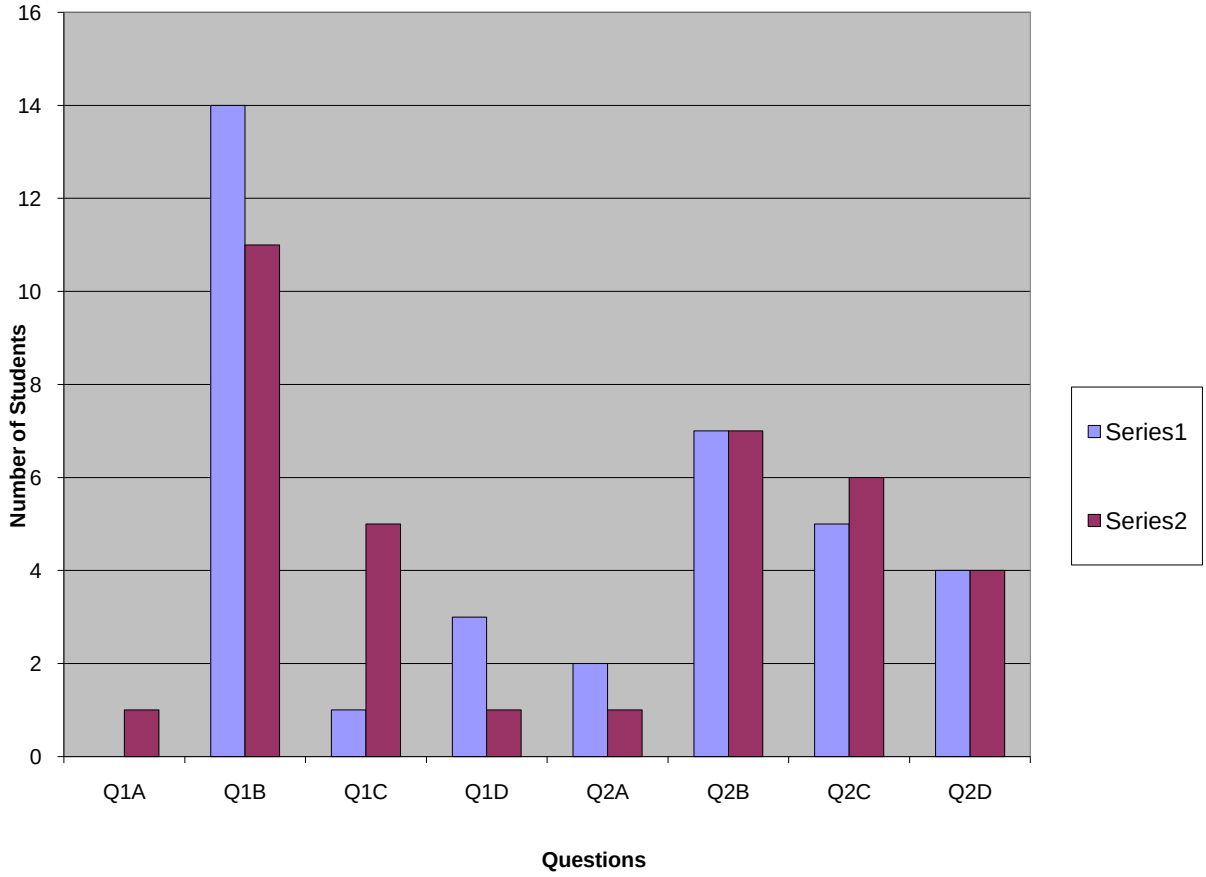

Figure 6. Comparison of questionnaire answers pre-question and post-question.

Conclusions and Recommendations

Conclusions

When analyzing the data in the study, it is inconclusive whether circular seating arrangements actually improve test scores. However, a circular seating arrangement combined with student-led discussions does seem to improve testing scores (see Figure 7), inferring retention and efficacy. The implementations, as a whole, appeared to make students more comfortable in the classroom, thereby rendering the class discussions more "open." It is important to remember that this study was performed in a short amount of time. Should this study be continued, long term, the results might show a more dramatic change.

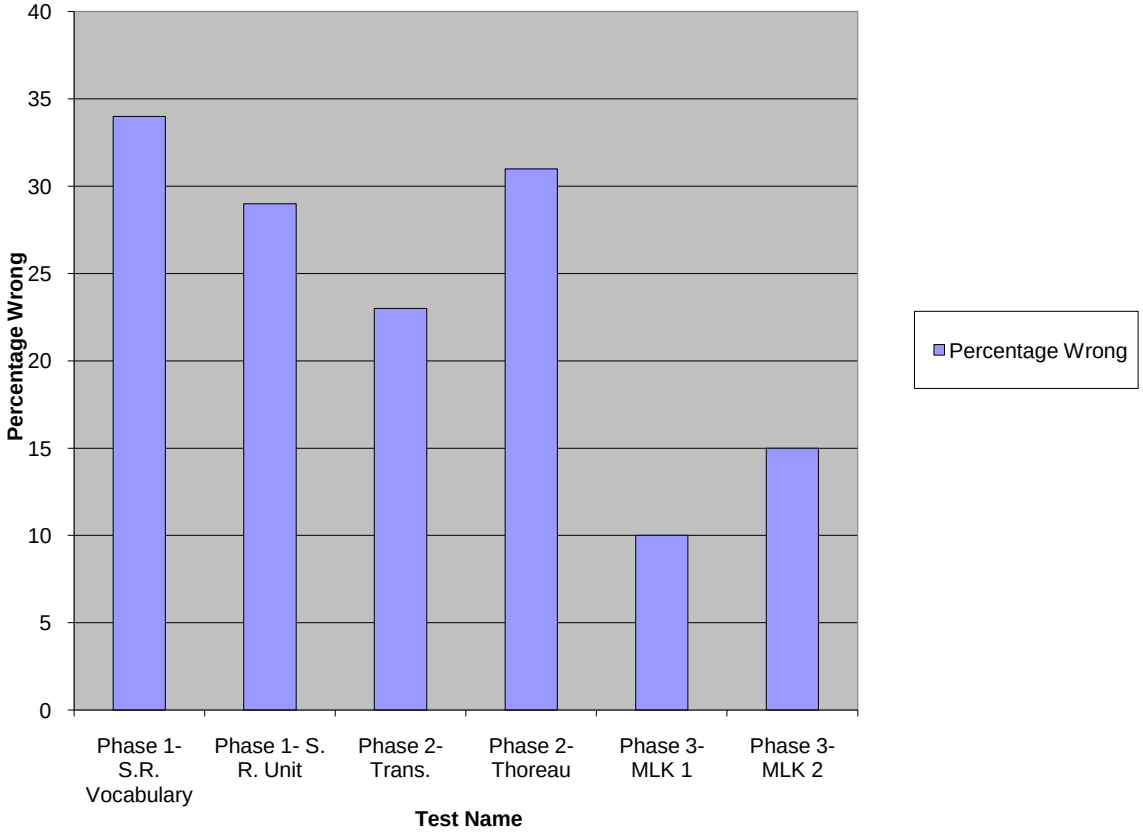

Figure 7. Percentage wrong by phase and test.

The methods used in this study can be beneficial to any aged person. It is imperative that any teacher attempting these methods become familiar with them before implementing them into the classroom. I have several years experience as a student of the "seminar" type classroom and have even used seminaring when teaching on an alternative license.

Recommendations

It is possible to implement technology into this type of activity. The main use for technology would be to study pieces of literature that occur online. Student leaders may

also be videotaped to review (a) how they present the topic, (b) how they present themselves, and (c) how the other students respond. Through the taping method, the students will be able to brainstorm other methods of leading the discussion that may produce more fruitful results.

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Appendix A

Questionnaire

Please circle one answer for each of the following questions:

1. How often do you speak during a class discussion
    a. Never
    b. Sometimes
    c. Often
    d. Very Often

2. How comfortable are you speaking during a class discussion
    a. Not at all Comfortable
    b. Somewhat Comfortable
    c. Comfortable
    d. Very Comfortable

Appendix B

Self Reliance

Instructions: Match the vocabulary words on the left to the definitions on the right

1. Benefactors	A. clear and unmistakable to the eye or mind
2. Conviction	B. going beyond the ordinary
3. Integrity	C. finding a person guilty of a crime
4. Imparted	D. to be greater in importance
5. Transcendent	E. one who helps an individual or institution
6. Proportionate	F. great dislike or disgust
7. Aversion	G. in proportion
8. Conspiracy	H. strong sense of honest or morality
9. Manifest	I. secret agreement or plan to commit a crime
10. Predominating	J. to give all or part of

Appendix C

Section A- Write whether the statement is true or false.

1. The theme or message of "Self Reliance" is to be yourself.
2. Emerson suggests that greatness lies in trusting and accepting yourself.
3. According to Emerson, great men such as Socrates have always behaved consistently and in conformity with their fellow humans.
4. Emerson states that persons of greatness are often misunderstood.
5. The essay "Self Reliance" contains many transcendentalist ideas.
6. Emerson says to try to imitate other that you consider to be role models.
7. Emerson says that we must put our hearts into our work if we are to feel relieved and happy.
8. Society is "in conspiracy" against the individual and demands that we conform to customs.
9. To be truly a man, one must be a nonconformist, according to Emerson.
10. Consistency is foolish and a "hobgoblin of little minds."

Section B- Choose the correct answer

11. "Self Reliance" encourages readers to
    a. trust themselves
    b. attend organized church regularly
    c. behave consistently
    d. control their tempers
12. Judging from "Self Reliance," Emerson was a strong promoter of
    a. Wisdom of the past
    b. The value of prayer and meditation
    c. Individualism- be yourself
    d. society
13. According to Emerson, the "hobgoblin of little minds" is
    a. Society
    b. Being a coward
    c. Conspiracy against the government
    d. Being consistent

14. In the excerpt from “Self Reliance,” Emerson says that people should strive to be
    a. Wealthy
    b. Misunderstood
    c. Famous
    d. happy
15. For Emerson, society is
    a. A waste of time and money
    b. A joint-stock company
    c. The backbone of civilization
    d. Totally evil
16. Emerson would encourage all of the following except one. Which one would he not agree with?
    a. Be yourself
    b. Find your work and do it
    c. Be inconsistent
    d. Conform
17. Which of the following best states Emerson’s philosophy in “Self Reliance?”
    a. Be true to yourself
    b. Misery loves company
    c. Keep your head in the books and ideas
    d. Turnabout is fair play—get even
18. Which virtue is in most demand by society?
    a. Education
    b. Productivity
    c. Progress
    d. Conformity

Appendix D

Transcendentalism

Directions: Choose the correct answer

1. Transcendentalism moved to the U.S. in the
    a. 1530s
    b. 1630s
    c. 1730s
    d. 1830s
2. What is not a belief of transcendentalism?
    a. Living close to nature
    b. Conformity
    c. Democracy
    d. individualism
3. Transcendentalism was concentrated in
    a. New York
    b. New England
    c. New Foundland
    d. New Mexico
4. Emerson went to
    a. Stanford
    b. Harvard
    c. Vanderbilt
    d. Princeton
5. He went to school at age
    a. 13
    b. 14
    c. 15
    d. 16
6. Thoreau attended
    a. Stanford
    b. Harvard
    c. Vanderbilt
    d. Princeton
7. He failed at which profession?
    a. Doctor
    b. Minister
    c. Lawyer
    d. Teacher
8. He failed the profession after
    a. 2 Days
    b. 2 Weeks
    c. 2 Months
    d. 2 Years

9. He was protesting
    a. Mexican War
    b. Civil War
    c. French/Indian War
    d. Battle of Hastings
10. He helped slaves escape to
    a. Mexico
    b. California
    c. Europe
    d. Canada

Appendix E

Part A: Choose whether the answer is True or False

1. Thoreau spent a week in Concord jail after refusing to pay his poll tax.

2. In Thoreau's opinion, the government has seriously hampered trade and commerce

3. Thoreau believes that the institution of slavery would probably die out if only one citizen protested and risked imprisonment.

4. Thoreau's view of the law is that it should take precedence over the conscience of the individual.

5. Thoreau believes that people should refuse to supposed the unjust actions of the government, or at least "wash his hands of it."

6. The only contact, Thoreau says, that he has with the government is through the tax collector.

7. In the selection, Thoreau asserts that the government has no powers over him except those he allows it to have.

8. Thoreau is released from jail after he agreed to pay his tax.

Part B- Choose the most appropriate answer.

9. In Thoreau's view, the practical reason the majority rules in a democracy is that
    a. This system satisfies most people
    b. The majority opinion is always the right or just opinion
    c. The majority opinion is more likely to be just
    d. The majority has more physical power on its side

10. Thoreau's hope for democracy of his time was that it
    a. Was one step along the way to a more perfect state or government
    b. Would disappear as people quit voting
    c. Would progress from an absolute monarchy to a limited monarchy
    d. Would abolish poll taxes for all time

11. Which of the following best describes Thoreau's attitude toward government after he was jailed
    a. He was mad that he was locked up.
    b. He was angry that they had tried to change his ideas.
    c. He lost all respect for the government and pitied it.
    d. He worried that he would lose his right to vote.

12. The primary or main conflict described in the selection is between Thoreau and
    a. The tax collector as a government employee
    b. His cell mate
    c. His Concord neighbors
    d. The American government

13. After his release, Thoreau described his neighbors as
    a. Unconcerned
    b. Understanding
    c. Encouraged by his example
    d. Friendly

14. Which of the following sparked Thoreau's refusal to pay taxes?
    a. Illiteracy
    b. Poverty
    c. Crime
    d. Slavery

15. Who has accomplished the work of the nation?
    a. The government
    b. The agents of the government
    c. The individual
    d. Special interest groups

16. After he was released from jail, Thoreau
    a. Tries to find out who paid him out of jail
    b. Tried to find his cell mate in the fields working the hay
    c. Picks up a shoe he was having repaired
    d. Makes a speech in front of the jail

17. Thoreau does not want "no government" but
    a. A better government
    b. A different type of government that is not democratic
    c. A committee to be formed to look at improvements
    d. Anarchy

18. Thoreau found it amusing that his jailers thought they had punished him by locking him up. Why?
    a. He needed a place to stay
    b. His imagination, thoughts and spirit were still free
    c. He had always wanted to see what the inside of the jail looked like
    d. His best friend was there

Appendix F

Choose whether the following statements are true or false

1. Dr. King made a distinction between just and unjust laws

2. “One who breaks and unjust law must do it openly, lovingly, and with a willingness to accept the penalty.”

3. King was arrested for inciting a riot.

4. King says that the laws in Alabama are not representative of the people because so many Negroes were not allowed to register to vote.

5. According to King, just laws are those that are a man-made code that agrees with God’s law.

6. King argues that one that breaks the law out of what his conscience tells him is in fact expressing the highest respect for the law.

Appendix G

Choose the most appropriate answer.

1. MLK Jr. was born in
    a. 1929
    b. 1939
    c. 1949
    d. 1959

2. MLK Jr. was assassinated in
    a. Nashville
    b. Memphis
    c. Birmingham
    d. Montgomery

3. MLK Jr. was killed in
    a. 1948
    b. 1958
    c. 1968
    d. 1978