Increasing Achievement Scores With

The Use of the Cornell Note Taking Style

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FACULTY APPROVAL

Increasing Student Achievement Scores

With the Use of Cornell Notes

Approved for the Faculty

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ABSTRACT

To examine if the use of the Cornell Note Taking Style could increase student achievement scores in core classes. Five eighth grade students ranked in the lower to middle range academically were observed and tracked in Social Studies and Language Arts. The students tracked were pre-tested, provided instruction using the Cornell Note Taking Style, and then post-tested to determine if achievement scores improved.

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CHAPTER 1

Introduction

Background for the Project

Many students were overwhelmed by the amount of studying needed to take place in order to be successful in school. With the demand for increased standards, teachers were requiring more in-class assignments and more homework. Students whose time was divided between extra-curricular activities both in and out of school struggled to balance the additional workload. The need existed to devise and implement an organizational plan that would help those struggling students achieve greater success in the classroom.

Research indicated that the greatest loss of information occurred within the first 24 hours of learning something new. Studies showed that about 46% of new information was lost. The percentage increased as times went on with 79% lost after 14 days and 81% lost after 28 days (Pauk, 1997). If a new organizational plan was to be successful it would need to increase the retention rate of new information learned in light of the increased number of days spent covering units in education.

Certainly, students have long had the ability to help themselves by improving their study skills. Identifying study plans and implementing them helped to increase achievement scores as well as decreased the amount of time spent studying. Such plans required a non-negotiable study time that was utilized on a daily basis. Students identified a block of time, perhaps 50 minutes, and added more time as needed to complete assignments. During that time, students prioritized according to difficulty and completed the most difficult task first (Landsberger, 2006).

One accepted study plan mandated that students maintain some sort of calendar, agenda, or organizer. Students were required to enter assignments, due dates, and upcoming tests. As assignments were completed, students placed a check mark by the assignment. Students made adjustments as needed so that the organizers were regularly updated (www.howtostudy.com).

Other recognized strategies to improve study skills have included the need to establish an appropriate work environment, free of distractions, and the need to be in the right frame of mind, focused and ready to concentrate on the task at hand (Malter, 2006). In addition, regular attendance was crucial for success. As most classes built on previously learned materials, absences caused a break in the receipt of new information. Consistent attendance in each class gave students the accurate material needed to study (Richard, 2006).

Finally, a well established strategy to improve study skills has been the development of effective note taking. As students moved through middle and high school, lectures became more prevalent and the need to take good notes became more crucial. Paying attention familiarized students with materials, and note taking was a skill that assisted students with retention of newly acquired information. Establishing an abbreviation system allowed students to spend less time writing down all of the information presented so that they could pay more attention to what was being said. As a result, students were able to quickly identify important details and ignore data that was irrelevant. Use of clear headers while note taking benefited the students during independent study because less time was used searching for important details. Review of the notes taken within a 24 hour period increased the retention of information

substantially. Periodic review throughout the section studied increased retention as the sections became longer and took more time to complete from start to finish (Malter, 2006).

One organizational plan that refined note taking skills was the Cornell Note Taking Style. With the Cornell Note Taking Style (CNTS), students were able to determine the information that is most important for test preparation. This allowed students to spend less time covering large amounts of text or searching through unorganized notes (Pauk, 1997).

Students using the CNTS method took relevant notes and organized them in a style that was easy to follow. With the proper setup of the note page, students were able to find information needed and were also able to review vocabulary terms in a much easier manner. Topics, subtopics, and vocabulary terms were written on the left margin of a piece of notebook paper; in the area to the right of the separating line, students wrote information or definitions allowing for more efficient use of study time (Lloyd, 2004).

The CNTS offered students a method of test preparation that was simple to understand and organized, which created an environment conducive to success. Because this style requires the topics or subtopics to be identified on the left margin of the note page, students found terms or topic areas much more quickly than the traditional note taking method (Lloyd, 2004).

Statement of the Problem

Parents complained that students spend an excessive amount of time preparing for classes, whether the focus is completing homework or preparing for an exam. Because

there is an increased amount of homework assigned in every academic area, students felt overwhelmed and became discouraged from performing successfully.

Educators at any level of education have the opportunity to reduce the amount of time students spend preparing for exams, quizzes, and other assigned projects and coursework. Material presented in class should be clear and identify the exact items the instructor believed were important for students to understand. Should the instructor implement a new educational tool to present pertinent, applicable information in class, both students and instructors would benefit. Information presented by the instructor would decrease to only specific points of data that would empower the student to successfully apply the knowledge gained to assigned coursework (Swanson, 2002). Purpose of the Project

Presentation of instruction in lecture format to U.S. History and Language Arts classes were observed to determine if student achievement scores could be improved for students using the CNTS to prepare for exams and other required assignments. A group of five students were the controlled study group and were followed over an eight-week period to determine if academic scores improved as a result of using the new tool instead of the traditional book teaching method.

Delimitations

The district where the study took place had a full time teaching staff of 81 teachers at the K-12 levels. Teachers within the district had an average of 13 years teaching experience with 45% of those holding a Masters degree. The student to teacher ratio was 19.6 students per teacher.

The students chosen for this study were enrolled in a district located in a rural community. Student demographics for 2005 were Caucasian and Hispanic. The student population was 74% Caucasian and 23% Hispanic. Of the 1586 students enrolled full time in 2005, 46% participated in the free or reduced lunch program. Participants in Special Education programs equaled 14.2% of the student body. In addition, 14.3% of the enrolled populations were classed as migrant students (OSPI, 2005).

This study examined student scores on coursework completed using the CNTS. Five eighth grade students were tracked in both U.S. History and Language Arts, and were selected as a result of academic scores in both subject areas. These students ranked in the lower to middle academic ranges for both classes and were able to complete coursework without Individual Education Plans (IEP's).

Assumptions

It was assumed that students had trouble preparing for quizzes and tests because the amount of information presented in the classroom setting was overwhelming. In addition to increased data presented, the number of assignments that were completed for all academic areas was notably greater than in years past. In addition, it was assumed that students using the CNTS were able to organize only the important information and definitions of terms in a manner that allowed less time preparing for class and created greater retention and recall of important details.

Hypothesis or Research Question

Eighth grade students that are instructed with the use of the CNTS in U.S. History and Language Arts will have higher achievement scores after using the CNTS in U.S History and Language Arts classes.

Null Hypothesis

Eighth grade students using the CNTS will not show improved achievement scores in U.S. History and Language Arts.

Significance of the Project

The use of the CNTS eliminated unorganized traditional note taking methods and created a more organized, user-friendly tool for students to use for study. As a result, students were more inclined to perform at their full potential rather than feeling frustrated and overwhelmed. Higher performance leads to the downstream effect of increased overall academic scores (Pauk, 1997).

Procedure

Average students enrolled in both eighth grade U.S. History and eighth grade Language Arts were selected for this study because it was believed those students would benefit from the use of the organized study method. No "A" performers were selected, nor were those students with failing grades selected as the controlled study group.

The five selected students were given instruction on use of the CNTS and requested to apply the note taking method in both classes to determine if the method had relevance. Students were instructed to apply the CNTS method in class during lecture and for individual assignments meant to be completed at home as a means for preparation for new material.

The beginning points for the comparison were the students' academic scores in both U.S. History and Language Arts immediately preceding the presentation of the CNTS method to the student. Progress was tracked in both classes over an eight-week period.

Definitions of Terms

CNTS: Cornell Note Taking Style, organized system of note taking

I.E.P: Individualized Education Program

CHAPTER 2

Review of Selected Literature

Introduction

For years, instructors at the college level had searched for tools that would assist students in improving achievement success. Walter Pauk, a professor at Cornell University, was one of those instructors. Pauk developed the CNTS, which was introduced to students at Cornell University to improve and lessen the burden of study time (Pauk, 1997).

The Cornell Note Taking System

Forty years ago, Pauk developed the CNTS to assist students in "better organizing notes." Pauk outlined six steps needed while using the CNTS: Record, Reduce (or question), Recite, Reflect, Review, Recapitulate, Sample.

The "Record" section was used to record as many facts as a person can write within a six inch column. The notes in this section are not expected to be concise, nor are the notes to be grammatically correct. It is important to short-note within the area provided. After the presentation of information, the student reviews the notes and fills in any blanks, or corrects any confusing areas.

Within the "Reduce" step, the student wrote in key words, phrases or questions that will serve as cues for the notes taken in class. These cues are written using words that will benefit the individual when reviewing the notes. In addition, questions were entered in the left hand column that helped clarify ideas.

The "Recite" step was one of the most powerful processes of the CNTS. At this step, the student stated the facts and ideas that are trying to be learned out loud. This step

was different from the usual study style where notes were re-read because the student spoke the ideas and information outloud rather than relying solely on reading. The purpose of stating ideas outloud was to challenge the individual to think about what the information truly meant. The recite step required that the data in the right hand column be covered and the cue words and terms listed in the left hand column be used to practice reciting the expanded details relating to those words. Should the individual not be able to remember specifics as related to the cue word, uncovering the data in the right hand column allowed the individual to easily retrieve that information.

The "Reflect" or reflection step was where the student thought about the information learned. Learning was reinforced for the individual by relating facts and ideas to other ideas. During this step, questions were asked such as "How do these facts and ideas fit into what I already know? How can I apply them? How is knowing this important?"(McDowell, 2006). Information and notes presented became reality for the student in that, at this point, it was recognized how information learned was beneficial to them.

The "Review" step was used to help prevent forgetting information learned. The student used the notes that have been taken and reviewed those frequently. It was recommended that the notes be reviewed nightly. It was important that the student reviewed the notes, not re-read them. In this instance, reviewing meant to look over important details and the summary; re-reading meant to re-read the entire set of notes taken. This step helped with the retention of information presented for a longer period of time.

The final step in the CNTS was "Recapitulate". The recapitulate section was found at the bottom of the note page and summarized the notes taken as well as integrated the information written. The summarization of information was intended to be a summary of key points and ideas written by the individual using language that was easily understood. The summarizations were not notes that were re-written verbatim. This step occurred after the lecture and other steps had been concluded (McDowell, 2006, Pauk, 1997).

Cornell Note Taking For Lecture Notes

The CNTS combined proven principles of memory and note taking. Students took notes from either a verbal lecture or from textbooks by writing important data points down. At a later time, the student filled in any gaps or other points that were not written down the first time. During this reflection time, cue words or questions were added in the left hand column to assist later in questioning the information.

The student then used the above stated steps in preparing for an exam and as a result, would retain more information. Students reviewed the notes at least 24 hours prior to taking an exam. Research indicated that students that prepared using this method retain 80% of the information if instructions are followed, or lose 66% of the information if not using this method properly (Lloyd, 2004).

The Cornell Note Taking System

The CNTS system of note taking was used for mastering information, not just recording of facts. The CNTS is an efficient tool, and each step prepared the student for the next part of the learning process. The CNTS did not require specialized materials; a binder, loose-leaf notebook paper and a writing utensil are all that was required. The student prepared the paper by drawing a line approximately $2 - 2\frac{1}{2}$ inches from the left margin. The left margin was used for cue words or questions to be written by the student at a later time.

Within the right hand section or the notes section, notes were recorded in paragraph form and lines were skipped to separate information. This system was not an outlining system, and notes were not written in outline form. The notes captured the main ideas of the lecture or section of the text. An abbreviation system was developed to fit the individual's personal style that allowed for reduced writing time.

After the notes were taken, questions or cue words were written in the left hand column and key points and phrases were underlined. Once notes were completed, a summarization or reflective paragraph of the material was written at the bottom of the note page (Swanson, 2002).

The Importance of Notes

The purpose of note taking was to provide a written record of information presented during a lecture or read in a textbook. A person's short-term memory does not retain all of the information presented during a lecture or the reading of a textbook. Thus, there was the need for a note taking system that was beneficial to students at all grade levels.

Herman Ebbinghaus examined the rate of forgetting by studying how easily he could relearn a list after different time intervals. Ebbinghaus learned that much of what a person learned is lost within the first hour (Ebbinghaus, 1964, Parkin, 1993,). It was

determined that after eight hours, however, the rate of information lost slowed. Reviewing assisted in greater retention of details.

There are other aspects of improving student achievement that are the responsibility of the student. Students were active participants in study preparation. Reading through notes only, over and over again, is not an effective preparation routine. Students that were active note takers benefited by using the notes to develop their own test that assisted in test preparation (Winstead, 2006). The CNTS made this process very easy. Since students had already taken notes on the topic following the template of the CNTS, students had identified the important information presented through lecture or self-guidance of the text as well as summarized the information. The written summarization at the end of the notes was important to strengthen understanding and memorization of information (Winstead, 2006).

Summary

The CNTS could be a beneficial tool for students at all levels of education. The CNTS was a useful tool that allowed students to spend less time organizing information presented in both a lecture setting as well as reading within a textbook and more time studying important information.

The use of the CNTS was a tool that benefited student progress and learning if consistently and correctly applied. Students that used the CNTS increased retention of information presented in lecture or read in the text by following very basic study techniques. Student use of the CNTS had the potential to increase achievement scores because information was recalled more readily and led to greater preparation for exams and other required coursework.

CHAPTER 3

Methodology and Treatment of Data

Introduction

Students were becoming overwhelmed by the amount of studying each had to do to be successful in school. With the increased demands from teachers, students needed a tool that would assist them in lessening the preparation time for exams. Teachers were able to assist students by introducing such a tool that provided an organized study program. A group of five 8th grade middle school students were tracked in two different classes, U.S. History and Language Arts. The students were chosen based on their current academic achievement scores in both courses. These students were those receiving average scores. No student with a failing grade or a grade of excellence was chosen as it was felt those participants would not produce accurate data of the effectiveness of the new strategy.

Students were taught without the benefit of the CNTS for the first 3 weeks of school. Students were tested over the information covered during that 3 week period. Students were then introduced to the CNTS method. Students took notes during discussion, lecture and individual work time using the CNTS. Students were tested over the information covered during the use of the CNTS over an 8 week period. The researcher wanted to see if test scores improved after students began using the CNTS. <u>Methodology</u>

The author used an experimental design method to gather data. The purpose of the study looked at what teachers could do to decrease the amount of individual study time

needed by students due to the increased amount of work expected. Presentation of instruction in lecture format to U.S. History and Language Arts classes were observed to determine if student achievement scores could be improved for students using the CNTS to prepare for exams and other required assignments. A group of five students were the selected study group and were followed over an eight-week period to determine if academic scores improved as a result of using the new tool instead of the traditional book teaching method. The study also suggested the student use of an organized study plan to assist them in decreasing the amount of work and time needed for them to be successful and increase their overall academic scores.

Participants

The participants for this study were chosen based on their academic scores. The students that were chosen were those receiving an average grade of a C in both 8th grade U.S. History and Language Arts. The researcher believed these participants would give the best data regarding the potential success of the study.

Instrument

The instrument used to determine if scores improved was a test that consisted of multiple choice and true/false questions as well as an essay question that the teacher prepared. The multiple choice and true/false questions part of the test were provided by the publisher of the text book used. The test was worth a total of 100 points.

The study also tried to eliminate bias based on teacher. Two different teachers, one male and one female, were used during the instruction time. It was felt that using different teachers would provide the most accurate of information and data representing either growth or decline of academic scores.

<u>Design</u>

The design that the researcher used was the One-Shot design. The one shot design was an experimental design where the students were administered an exam and that information was used to measure improvement. The One-Shot design method provided the information that would be covered in the section and then tested on understanding. Students were tested over information covered pre-CNTS and post CNTS to determine growth and validity of the CNTS method (Airasian, Gay & Mills, 2006).

Procedure

Average students enrolled in both eighth grade U.S. History and eighth grade Language Arts were selected for this study because it was believed those students would benefit from the use of the organized study method. No "A" performers were selected, nor were those students with failing grades selected for the study group.

The five selected students were given instruction on the use of the CNTS and requested to apply the note taking method in both classes to determine if the method had relevance. Students were instructed to apply the CNTS method in class during lecture and for individual assignments meant to be completed at home as a means for preparation for new material.

The beginning points for the comparison were the students' academic scores in both U.S. History and Language Arts immediately preceding the presentation of the CNTS method to the student. Progress was tracked in both classes over an eight-week period.

Treatment of Data

The researcher used exams provided by the text for the first 2 exams. The exams were made up of multiple choice responses, true/false, identifying terms and people, and mapping skills. After the CNTS was introduced, the researcher continued to use the exams provided by the text as well as the addition of short response essay questions. Student scores on these tests determined if student achievement scores on tests improved or not.

Summary

An 8th grade U. S. History instructor and an 8th grade Language Arts teacher together gathered data to see if student scores improved using the CNTS. Data was compared using the test scores from exams given pre CNTS and those exams given post CNTS.

Chapter 4

Analysis of the Data

Introduction

Students were becoming overwhelmed by the amount of studying each had to do to be successful in school. With the increased demands from teachers, students needed a tool that would assist them in lessening the preparation time for exams. Teachers were able to assist students by introducing such a tool that provided an organized study program. A group of five 8th grade middle school students were tracked in two different classes, U.S. History and Language Arts. The students were chosen based on their academic achievement scores in both courses at the beginning of the study. These students were those receiving average scores. No student with a failing grade or a grade of excellence was chosen as it was felt those participants would not produce accurate data of the effectiveness of the new strategy.

Description of the Environment

The district where the study took place had a full time teaching staff of 81 teachers at the K-12 levels. Teachers within the district had an average of 13 years teaching experience with 45% of those holding a Masters degree. The student to teacher ratio was 19.6 students per teacher.

The students chosen for this study were enrolled in a district located in a rural community. Student demographics for 2005 were Caucasian and Hispanic. The student population was 74% Caucasian and 23% Hispanic. Of the 1586 students enrolled full time in 2005, 46% participated in the free or reduced lunch program. Participants in

Special Education programs equaled 14.2% of the student body. In addition, 14.3% of the enrolled populations were classed as migrant students (OSPI, 2005).

This study compared student test scores pre-CNTS and post CNTS in U.S. History and Language Arts. The five students were chosen based on academic test scores for both classes. These students were academically in the lower to middle range of the grading scale – receiving the grade of C. The students chosen were capable of completing assigned work without Individual Education Plans (IEP's).

Hypothesis/Research Question

Eighth grade students that are instructed with the use of the CNTS in U.S. History and Language Arts will have higher achievement scores after using the CNTS in U.S History and Language Arts classes.

Null Hypothesis

Eighth grade students using the CNTS will not show improved achievement scores in U.S. History and Language Arts.

Results of the Study

The study conducted showed an overall improvement in test scores by the participants in both U.S. History and Language Arts. An overall growth of 22.45 percentage points for all participants combined. There was a representation of a 24.5% average growth by the group in U.S. History and a 20.4% average growth in Language Arts. The increased test scores of students prove that the researcher's hypothesis was proven and the null hypothesis was rejected. Chart one represents student average and growth pre-CNTS and post-CNTS in U.S. History. Chart two represents student average and growth both pre-CNTS and post-CNTS for Language Arts.



CNTS Results 8th Grade US History



CNTS Results 8th Grade Language Arts

Findings

The test scores represented an increase in achievement of the test group. The student growth after the use of the CNTS varied from an overall percentage growth of 5.5% to 38%.

With the data collected and reviewed, the hypothesis is accepted as all participants in the study group improved achievement scores in U.S History and Language Arts at the 8th grade level.

Summary

Student achievement scores on the tests using the CNTS increased substantially proving the researcher's hypothesis as correct and nullifying the null hypothesis. Student test scores improved an average of 24.5% in U.S. History and 20.4% in Language Arts when students used the CNTS.

Chapter 5

Summary, Conclusions and Recommendations

Introduction

With the increased amount of work placed on students by teachers and with the increased amount of time students are expected to spend on other activities outside of school, some students have found it difficult to balance school and those other activities. Some students just cannot find enough time during the day for everything including studying. The goal of this study was to see if using a simple tool like the CNTS as a significant part of a comprehensive study plan could in fact improve student achievement scores in U.S. History and Language Arts.

Summary

The researcher investigated whether the implementation of the CNTS along with a study skills plan would improve student achievement scores in 8th grade U.S. History and Language Arts. Student test scores pre-CNTS instruction were compared to their test scores after learning the CNTS to see if growth in achievement occurred.

Conclusions

Student achievement scores on the tests using the CNTS increased substantially. Student test scores improved an average of 24.5% in U.S. History and 20.4% in Language Arts when students used the CNTS. The use of such a simple tool to assist students in preparation and organization of notes for tests along with aiding in setting up a study plan can be beneficial to students. Students can reduce the amount of time preparing for exams as well as other assignments by using the organized system of the Cornell Notes. The charts provided represent just a small group, yet a group that would

provide the more accurate data, and they illustrate a significant increase in achievement after using the CNTS.

Recommendations

The conclusion of this research project only looked at the benefits of use with two subject areas. The study also used a small sample of students meeting a certain criteria set by the researcher. Although the findings from the information gathered represented a large growth in achievement scores with those students used, it is recommended by the author that a larger group of students be used to continue this study. It is also recommended that the study include other subject areas to see if this method of study preparation would be beneficial throughout all subject areas.

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